



MODEL NO. CTV 1402

# Service Manual

## CONTENTS

	Page
X-RAY RADIATION PRECAUTION .....	2
SAFETY PRECAUTION .....	2
PRODUCT SAFETY NOTICE .....	2
OPERATION CONTROLS .....	3
MECHANICAL DISASSEMBLIES .....	4
GENERAL ADJUSTMENT INSTRUCTION .....	5-14
EXPLODED VIEW OF REMOTE CONTROL UNIT .....	15
MECHANICAL PART LIST FOR REMOTE CONTROL UNIT .....	15
EXPLODED VIEW OF MAIN UNIT .....	16
MECHANICAL PART LIST FOR MAIN UNIT .....	17
CIRCUIT DIAGRAM .....	18-20
BLOCK DIAGRAM .....	21-22
TUNER CIRCUIT .....	23
BOTTOM AND COMPONENT VIEW OF P.C. BOARD .....	24-29
ELECTRICAL PARTS LIST .....	30-36
SPECIFICATIONS .....	37

## CAUTION

Before servicing the chassis, read the "Safety Precaution", "X-Ray Radiation Precaution" and "Product Safety Notice" on Page 2 of this manual."

## X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-Ray Radiation. To avoid such hazards, the high voltage must not be above the specified limit. The normal value of the high voltage of this receiver is 24KV at zero beam current (minimum brightness) under 220V AC power source. The high voltage must not, under any circumstances, exceed 25KV.
2. Each time a receiver requires servicing, the high voltage should be checked following the High Voltage Check procedure in this manual. It is recommended the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
3. The primary source of X-Ray Radiation in this TV Receiver is the picture tube. For continued X-Ray Radiation protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some parts in this receiver have special safety — related characteristics for X-Ray Radiation protection. For continued safety, parts replacement should be undertaken only after referring to the Product Safety Notice below.

## SAFETY PRECAUTION

**Warning:** Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver.

The following are the necessary precautions to be observed before servicing this chassis.

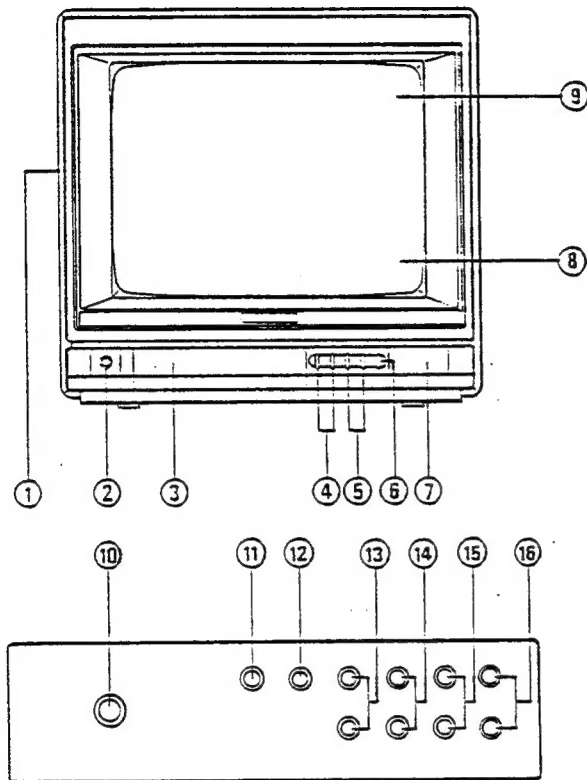
1. Since the power supply circuit of this receiver is directly connected to the AC power line, an isolation transformer should be used during any dynamic service to avoid possible shock hazard.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. When replacing parts or circuit boards, disconnect the power cord.
5. When replacing a high wattage resistor (Metal oxide film resistor) on circuit board, keep the resistor 10mm (1/2 in.) away from circuit board.
6. Connection wires must be kept away from components with high voltage or high temperature.
7. If any fuse in this TV receiver is blown, replace it with the FUSE specified in the chassis parts list.
8. The receiver is designed to operate with 220V (50Hz) AC mains.

## PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-Ray Radiation protection afforded by them cannot necessarily be obtained by using replacement components rated for higher wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements, electrical components having such features are marked with "⚠" on the schematic diagram and the part list.

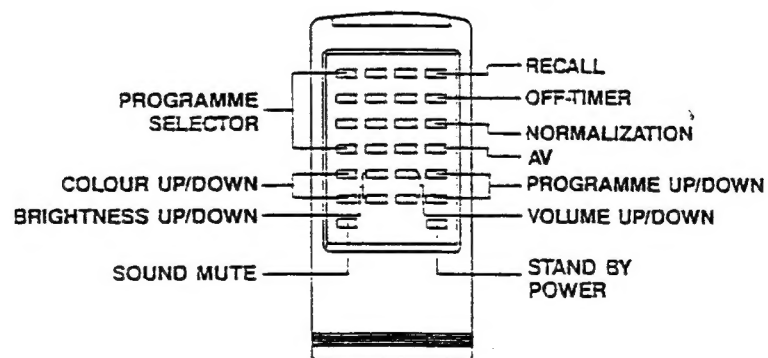
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-Ray Radiation or other hazards.

## OPERATION CONTROLS



- ① SPEAKER
- ② POWER SWITCH
- ③ PRESET DOOR
- ④ VOLUME CONTROL BUTTONS (UP/DOWN)
- ⑤ PROGRAMME SELECTOR BUTTONS (UP/DOWN)
- ⑥ STAND-BY POWER
- ⑦ INFRA-RED RECEIVING WINDOW
- ⑧ VOLUME LEVEL INDICATOR
- ⑨ PROGRAMME POSITION INDICATOR
- ⑩ CONTRAST CONTROL
- ⑪ AV KEY
- ⑫ AFT ON
- ⑬ AUTO SEARCH BUTTONS (UP/DOWN)
- ⑭ FINE TUNING BUTTONS (UP/DOWN)
- ⑮ COLOUR CONTROL BUTTONS (UP/DOWN)
- ⑯ BRIGHTNESS CONTROL BUTTONS (UP/DOWN)

INSIDE THE PRESET DOOR



**WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL**

## CABINET BACK REMOVAL

1. Disconnect the antenna leads from the antenna terminals.
2. Remove 4 screws (A) securing the Cabinet Back to the Cabinet Front
3. Remove 2 screws (B) securing the Cabinet Back to the Jack Plate, and detach the cabinet back.

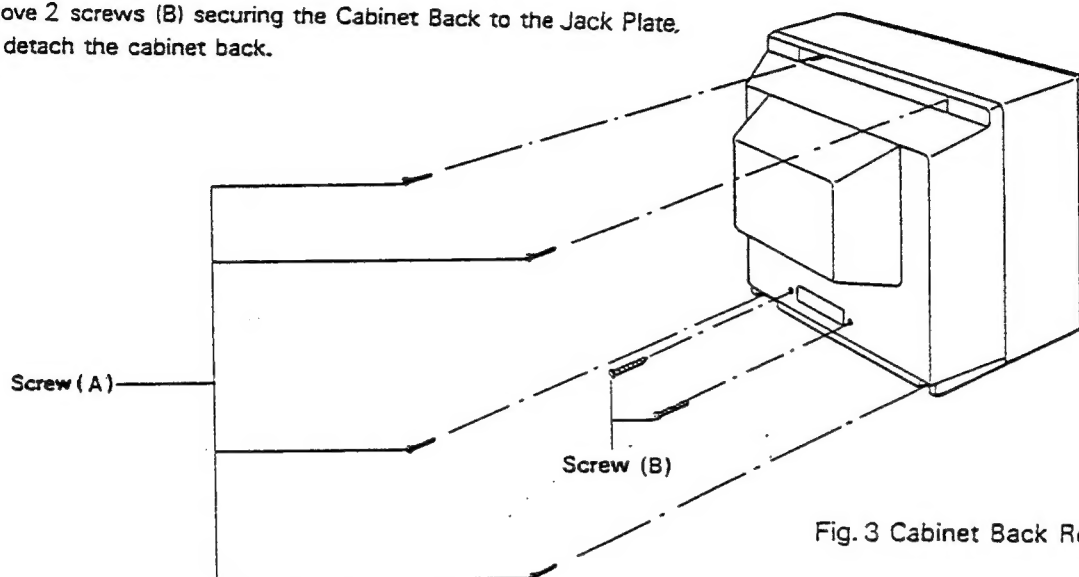


Fig. 3 Cabinet Back Removal

## CHASSIS REMOVAL

Following the steps under Cabinet Back Removal, proceed as follows:

1. Unplug the CRT grounding wire socket connected to the CRT Socket Board.
2. Detach the picture tube anode cap.

Notice: Certainly discharge the high potential of the picture tube anode to the receiver chassis before removing the anode cap.

3. Detach the CRT Socket (CRT Socket Board).
4. Take out the chassis for the front cabinet.
5. Remove 7 screws securing the Control Board to the Cabinet Front.
6. Take out the control board from the front cabinet.

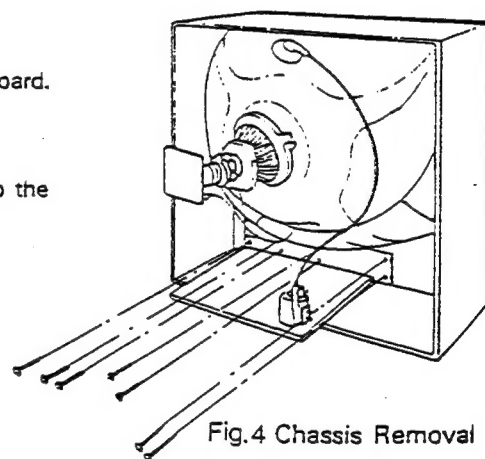


Fig. 4 Chassis Removal

## PICTURE TUBE REMOVAL

Following the steps under CHASSIS REMOVAL proceed as follows:

1. Place the cabinet with the front down on a rolled pad or some suitable cushion placed near the top edge of the front panel.
2. Remove 4 screws securing the picture tube to the cabinet, and detach the CRT with the degaussing coil, then grasp the face plate edge of the picture tube with both hands and take out the picture tube.
3. Detach the CRT grounding wire which is attached to the picture tube lugs with spring.

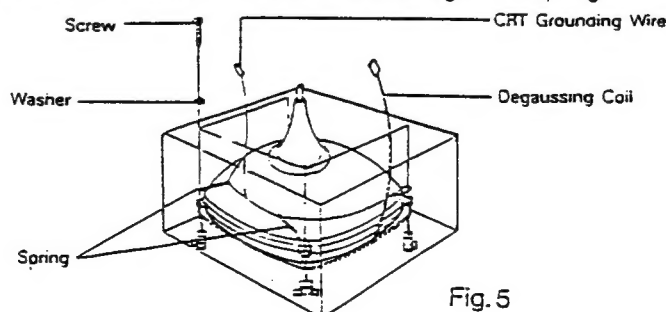


Fig. 5

## GENERAL ADJUSTMENT INSTRUCTION

This receiver is transistorized and special care should be taken when servicing. Read the following matters that demand special attention before attempting adjustment.

1. Adjustment requires an exact procedure and should be undertaken only when necessary.
2. An isolation transformer should be used during any dynamic service to avoid possible shock hazard.
3. The test equipment specified or its equivalent is required to perform the alignment properly. Use of equipment which does not meet these requirements may result in improper alignment.
4. Correct matching of the equipment is essential. Failure to use proper matching will result in responses which can not represent the true operation of the receiver.
5. The AC power line voltage should be kept 215 to 225 volts (50Hz) during alignment.
6. Do not attempt to connect or disconnect any wire while the receiver is in operation. Make sure the power cord is disconnected before replacing parts in the receiver.
7. Unless otherwise noted, do not perform any adjustment until the receiver has been turned on for at least 10 minutes.

### 1. Picture And Sound I.F. Adjustment

#### Test Equipment:

1. AM/FM signal generator (4.5MHz — 6.5MHz).
2. Sweep/Marker signal operator (30 MHz — 60 MHz).
3. Sync. oscilloscope.
4. Oscilloscope (voltage sensitivity over 10mV and input impedance over 1 Mohm, below 10PF).
5. Probe (Low capacitance).
6. High impedance electronic voltmeter on VTM (Input impedance having 100K ohm/V at least).
7. DC power supply (Source such as a battery or a well regulated and isolated DC bias supply).

#### (A) 31.9MHz, 40.4MHz Traps, Picture I.F. And AFC Adjustment

##### (a) 31.9MHz, 40.4MHz Traps Alignments (This alignment for the model with FTZ Type only.)

1. Connect the signal output of sweep/marker generator to the Tp of Tuner through 1 K ohm resistor and 1000PF capacitor. (See Fig.8.).
2. Connector the external detecting circuit between the syncoscilloscope input and TP 101 (Q101 — Collector). (See Fig. 9.).
3. Apply +16.5V DC across C314 on Main Board.
4. Tune T105 for maximum attenuation of 31.9MHz as shown in Fig.10.
5. Tune T106 for maximum attenuation of 40.4MHz as shown in Fig.10.

##### (b) P.I.F. Alignment:

1. Remove the external detecting circuit from Main Board.
2. Reconnect the sync oscilloscope input with look ohm resistor in series to TP102
3. Apply a +8V DC dummy AGC bias to TP103 (pin 5 of IC101) through 470 ohm resistor.

4. Apply a +3V DC to TP104 (pin 3 of IC405) and TP105 (pin 4 of IC405) through 100 ohm.
5. Tune T102 for maximum gain of 38.9MHz as shown in Fig.11.
6. Tune T101 for maximum gain of 34.47MHz as shown in Fig.11.

(c) AFC Alignment

1. Reconnect the sync oscilloscope input with 1M ohm resistor in series to TP106 (pin 14 of IC101).
2. Adjust T103 for the marker (38.9MHz) of AFC wave form at position. (See Fig.12.) the centre.

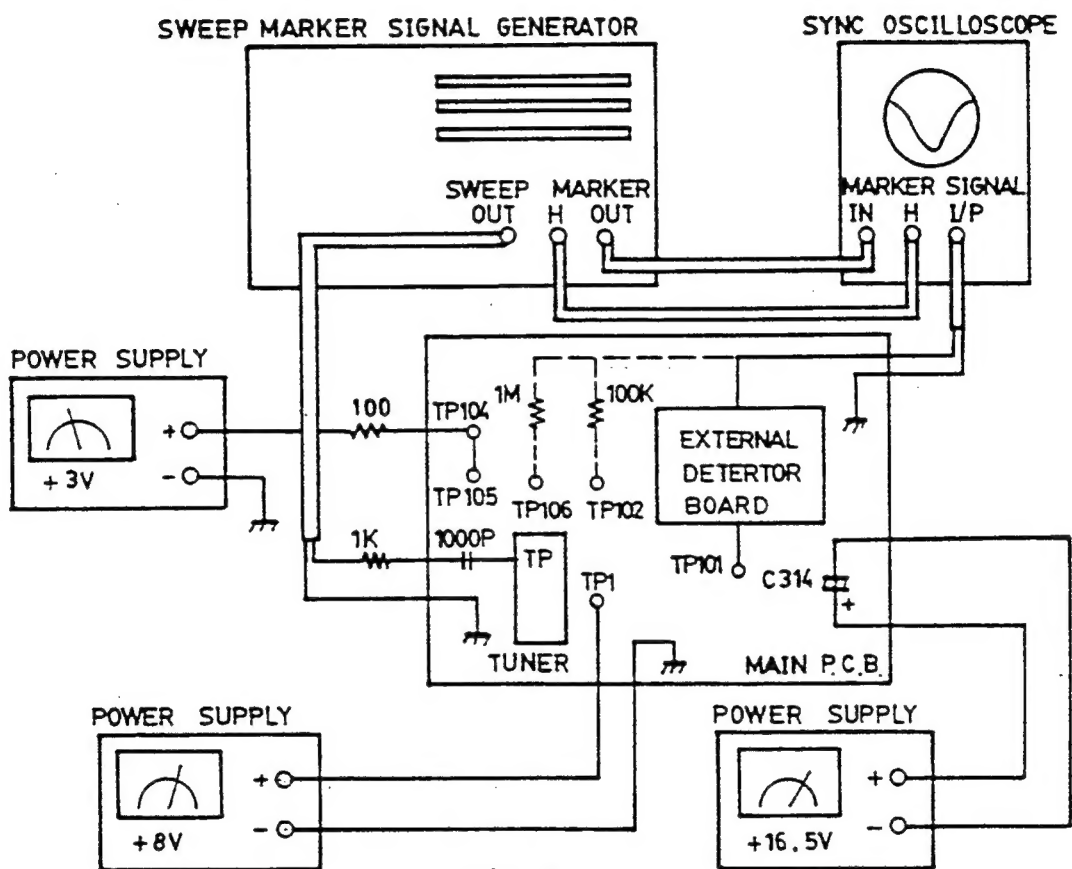


Fig. 8

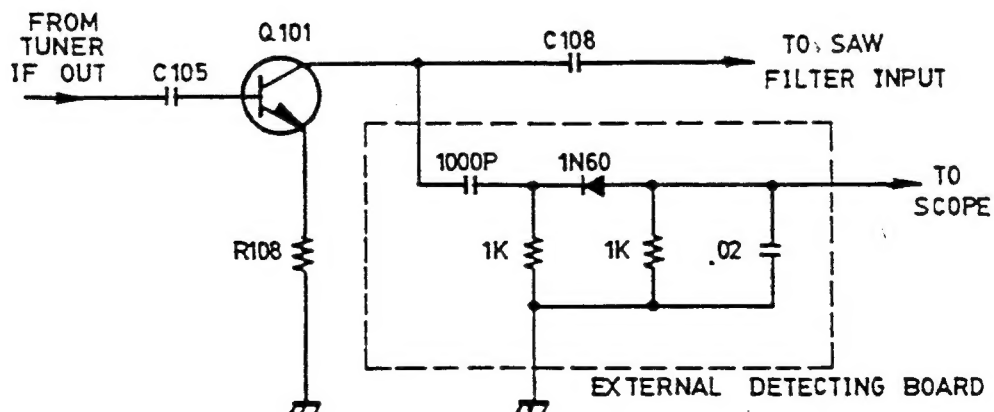


Fig. 9

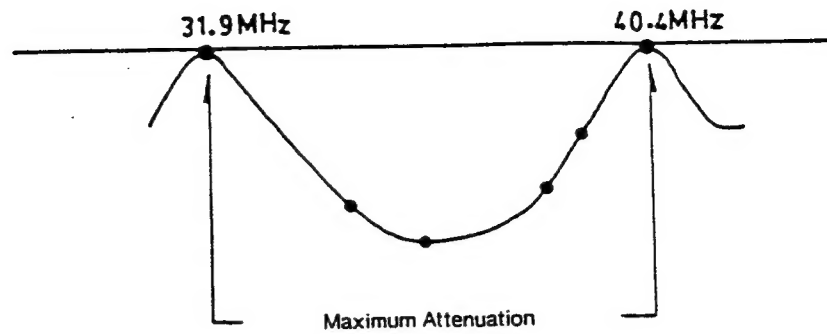


Fig. 10. 31.9, 40.4MHz Traps Resoponse Curve

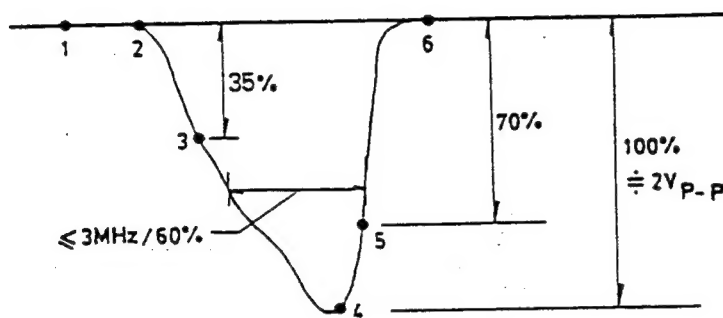


Fig. 11. P.I.F. Response Curve

P.I.F. RESPONSE:

No	Marker of B/G
1	31.9 MHz
2	33.4 MHz
3	34.47 MHz
4	37.9 MHz
5	38.9 MHz
6	40.4 MHz

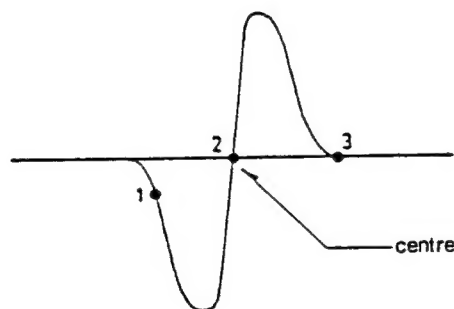


Fig. 12. AFC Response Curve.

AFC Response

No	Marker of B/G
1	37.9 MHz (+)
2	38.9 MHz (0)
3	40.4 MHz (-)

#### (B) S.I.F. Alignment

1. The signal from AM/FM signal generator which is set at 5.5MHz with AF400Hz, 30% FM modulation, is applied to TP107 (between C127 and C128) through a 1K ohm resistor and a 1000pf capacitor as shown in Fig. 13.
2. Short TP103 (pin 5 of IC101) to ground.
3. Connect the oscilloscope input to TP109 (pin 23 of IC101)
4. Apply a +16.5V DC across C314 (TP108).
5. Adjust T104 for the marker (5.5MHz) of SIF waveform at the centre position Fig. 14.



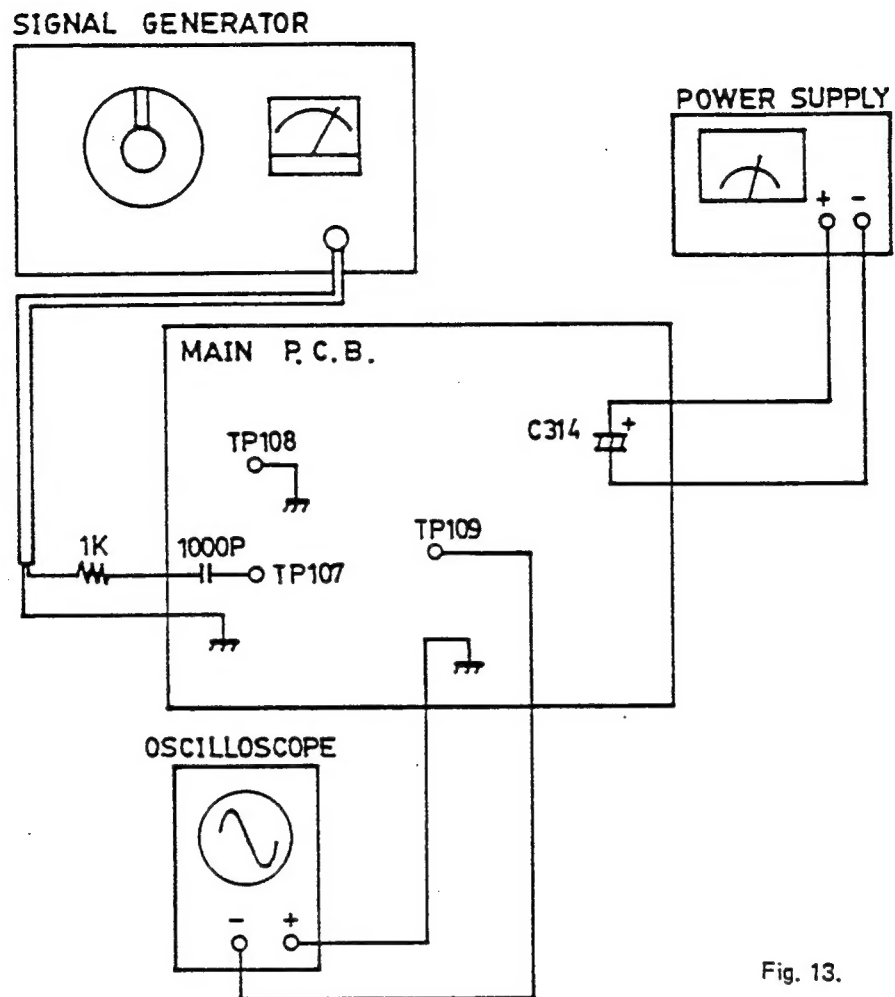


Fig. 13.

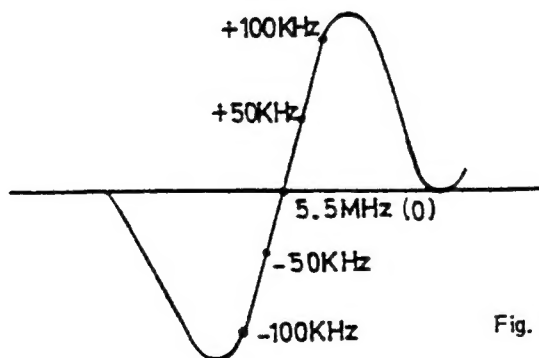


Fig. 14. SIF Response Curve

## **II. General Adjustment**

### **1. Automatic Degaussing**

An automatic degaussing coil is attached around the picture tube, degaussing the tube properly in about one second after the set is switched on. If the receiver is moved or faced in a different direction, the power must be switched off at least 15 minutes in order that the automatic degaussing circuit operates properly. External degaussing is necessary if the automatic degaussing proves ineffective after the set is moved. External degaussing is done by moving a degaussing coil circlewise in front of the face plate and then switch off the degaussing coil. If residual colour spots are still found on the screen, adjust the color purity and convergence.

### **2. B +(110V) Adjustment**

**CAUTION:** To avoid X-Ray hazards, B+ voltage must be set correctly at 110V position.

- (a) Make sure the AC Power supply is 220V, 50Hz.
- (b) Switch on the TV Receiver, tune in an active channel and adjust Brightness/Contrast for maximum.
- (c) Connect TP601 (Q606 – Emitter) on the Main PCB to a reliable DC voltmeter.
- (d) Adjust VR601 on Main PCB for B +110V voltage reading.

### **3. High Voltage Check**

**CAUTION:** There is no high voltage adjustment in this chassis, B+ 110V voltage directly relates to the high voltage, it must be properly adjusted to insure the correct high voltage. The high voltage must not exceed 25KV under any conditions.

- (a) Connect an accurate high voltage meter to the second anode cap of the picture tube.
- (b) Turn on the receiver, set Brightness the Contrast controls to minimum. (Zero beam current)
- (c) Make sure the high voltage does not exceed 24KV.
- (d) No matter whether the luminance, contrast and chrominance controls are set to maximum or minimum, the high voltage must be kept under 25KV.

### **4. Focusing Adjustment**

- (a) Receive the philips pattern signal
- (b) Set the contrast control to the maximum position.
- (c) Adjust focus control of flyback transformer for a well-defined, sharpest display in the centre of the screen.

### **5. Height Adjustment**

- (a) Receive the philips pattern signal.
- (b) Adjust the height control (VR205) to slightly overscan the screen.

#### 6. Horizontal Position

- (a) Receive the philips pattern.
- (b) Adjust horizontal hold control (VR203) to the centre

#### 7. Vertical Hold Adjustment

- (a) Receive the philips pattern.
- (b) Short TP201 (pin 37 of IC202) to GND by jumper wire.
- (c) Connect a frequency counter to TP202 (between C306 and C307).
- (d) Adjust Vertical Hold control (VR204) for 45 – 46Hz reading.

#### 8. Colour Syne Adjustment

- (a) Tune in a colour bar signal.
- (b) Set the colour control to maximum.
- (c) Cut off the colour killer by connection the TP203 (pin 2 of IC202) and TP204 (pin 12 of IC202) with 10K ohm resistor.
- (d) Short TP205 (L206) to GND by jumper wire.
- (e) Adjust the colour sync variable capacitor (C242) for the colour bar pattern stand still or drifts slowly across the picture screen.

#### 9. PAL Matrix Adjustment

- (a) Tune in a colour bar signal
- (b) Use oscilloscope with 2 channels input and set to "X – Y" mode.
- (c) Channel 1 (x) is connected to TP206 (pin 21 of IC202) (R – Y)
- (d) Channel 2 (Y) is connected to TP207 (pin 22 of IC202) (B – Y)
- (e) Adjust amplitude balance VR202 until the centre points of the two wave forms bring together (Fig.15.)
- (f) Adjust T205 until all other points of two waveforms bring together (Fig.15.)
- (g) Adjust T206 to obtain the maximum hexagon.

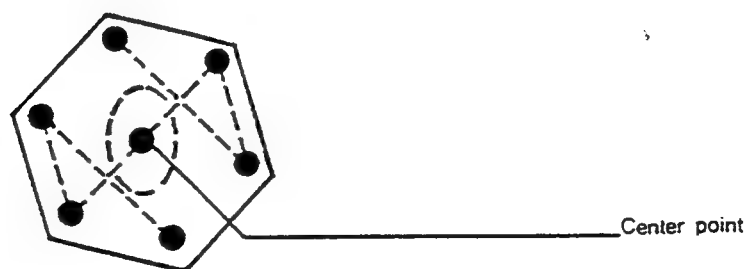


Fig. 15 Matrix Vector Diagram.

#### 10. Delay AGC Adjustment

- (a) Tune in the colour bar pattern signal
- (b) Set input signal level at 60 dB
- (c) Connect a high impedance DC Voltmeter to tuner AGC terminal.
- (d) Adjust RF AGC control (VR101) for  $5.2V \pm 0.2V$  reading.
- (e) Increase input signal level to 100 dB.
- (f) Check for normal picture, sound and sync.

#### 11. White Balance Adjustment

- (a) Receive a monochrome signal and warm up the set for 15 minutes.
- (b) Set the R.G.B. cut-off (VR501, VR503, VR505) at the centre position.
- (c) Rotate the G.B. drive controls (VR502, VR504) fully counter-clockwise first, then clockwise rotate back to 1/3 position.
- (d) Turn the screen control to minimum position.
- (e) Disconnect the Y signal output terminal connector.
- (f) Short TP202 (between C306 and C307) to GND by jumper wire.
- (g) Rotate the screen control gradually clockwise until the first horizontal line appears on the screen.
- (h) If the first horizontal line is in red, adjust VR503, VR504 to increase the green and blue component level to get a white horizontal line.
- (i) Remove the Jumper wire, connect back the Y signal output terminal and switch back to TV.
- (j) Receive the philips pattern signal and set the contrast colour control to minimum and brightness control to maximum
- (k) Adjust VR502, VR504 to maintain a good white balance at the brightest part of screen.

#### 12. On-Screen Position Adjustment

- (a) Select the position "29" by the programme button (+ or -).
- (b) Tune in the philips pattern signal.
- (c) Press the "Recall" button once, the large character size of programme No. will be changed to small size for approx. 3 seconds.
- (d) Adjust C413 for the programme No "29" (small size) position as shown in Fig.16.

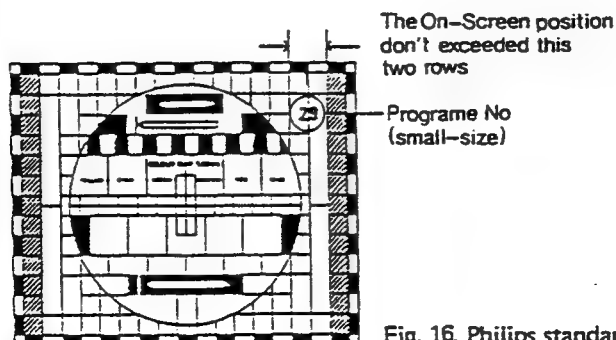


Fig. 16. Philips standard colour pattern

### 13. Sub-Brightness Adjustment

- (a) Receive the philips pattern signal.
- (b) Set the contrast, Brightness and colour controls to minimum position.
- (c) Adjust sub-brightness (VR404) until light just appears on the screen.

## III. Color Purity And Convergence Adjustment

### 1. Color Purity Adjustment

NOTE: Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

- (a) Demagnetize the picture tube and cabinet using a degaussing coil.
- (b) Turn the Contrast and Brightness controls to maximum.
- (c) Adjust Red and Blue controls (VR501) and (VR505); to provide only a green raster. Advance the Green Bias control (VR502) if necessary.
- (d) Loosen the clamp screw holding the yoke backward to provide vertical green belt (Zone) in the picture screen.
- (e) Remove the Rubber Wedges.
- (f) Rotate and spread the tabs of the purity magnet (see Fig.21.) around the neck of the picture tube until the green belt is in centre of the screen. At the same time, centre the raster vertically.
- (g) Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
- (h) Check the purity of the red and blue raster by adjusting the Bias controls.
- (i) Obtain a white raster, referring to white balance adjustment.
- (j) Proceed with convergence adjustment.

### 2. Convergence Magnet Assembly Positioning

Convergence Magnet Assembly and Rubber Wedges need mechanical positioning following Fig. 20.

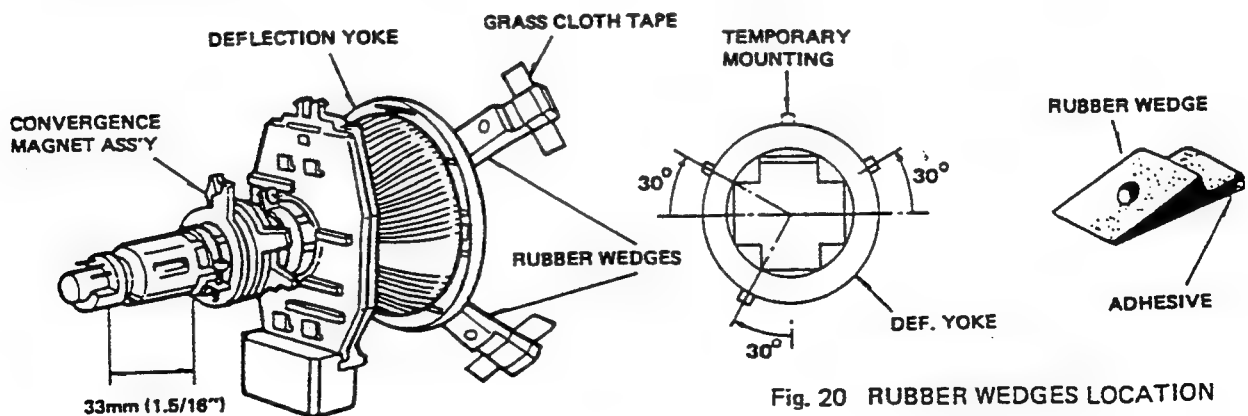


Fig. 20 RUBBER WEDGES LOCATION

### 3. Centre Convergence Adjustment

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

- (a) Receive crosshatch pattern with a color bar signal generator.
- (b) Adjust the Brightness and Contrast controls for well defined pattern.

- (c) Adjust two tabs of the 4 Pole Magnets to change the angle between them (see Fig.21.) and superimpose red and blue vertical lines in the centre area of the picture screen. (See Fig.22.)
- (d) Turn both tabs of the 4 Pole Magnets to change the angle to superimpose red and blue horizontal lines at the centre of screen (See Fig.21.)
- (f) Repeat adjustments 3, 4, 5, keeping in mind red, green and blue movement, because 4 Pole Magnets and 6 Pole Magnets interact and make dot movement complex.

#### 4. Circumference Convergence Adjustment

NOTE: This adjustment requires Rubber Wedges and Glass Cloth Tapes.

- (a) Loosen the clamping screws of deflection yoke to allow the yoke to tilt.
- (b) Place a wedge as shown in Figure 6 temporarily. (Do not remove cover paper on adhesive part of the wedge).
- (c) Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See Fig.22.) Push the mounted wedge into the space between picture tube and the yoke to hold the yoke temporarily.
- (d) Place other wedge into bottom space and remove the cover paper to stick.
- (e) Tilt front of the yoke right or left obtain better convergence in circumference. (See Fig.22.)
- (f) Hold the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to hold the yoke.
- (g) Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
- (h) After placing three wedges, recheck over all convergence. Tighten the screw firmly to hold the yoke tightly in place.
- (i) Stick 3 glass cloth tapes on wedges as shown in Figure 20.

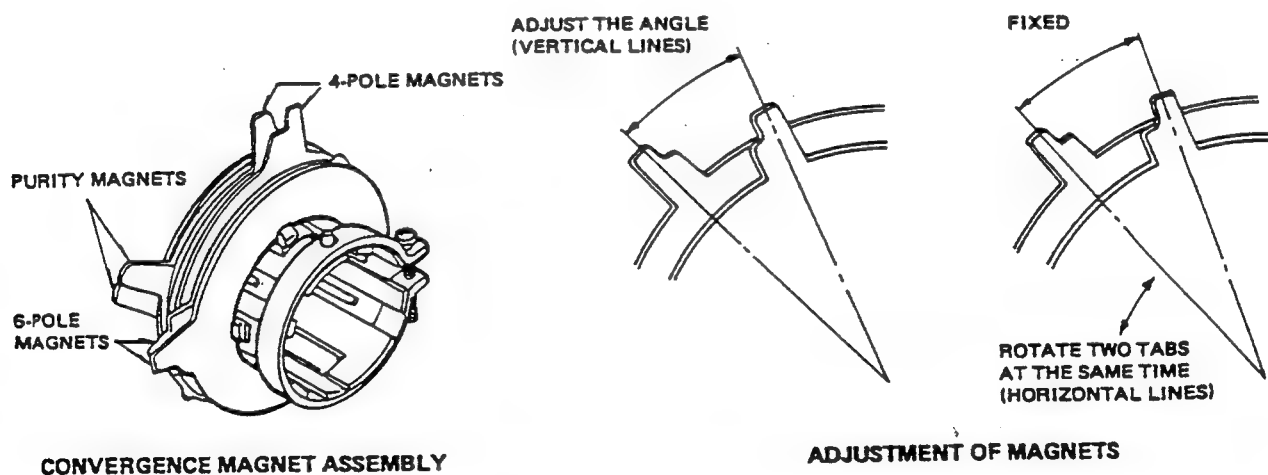


Fig. 21.

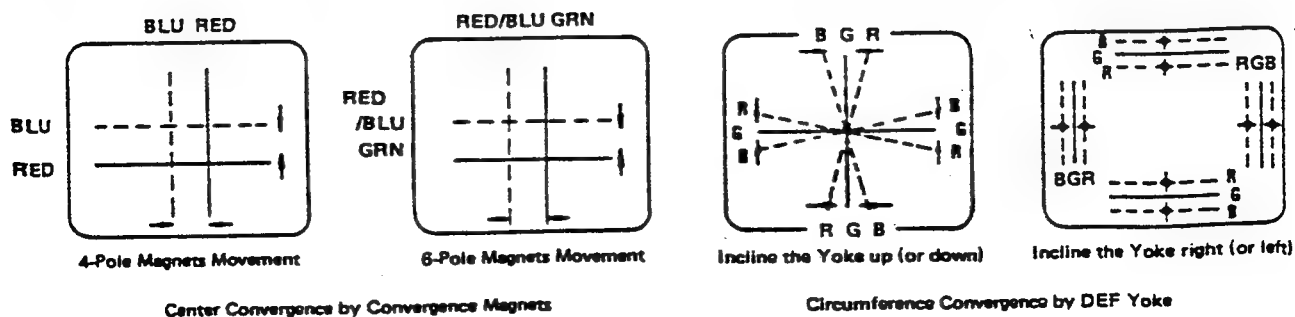
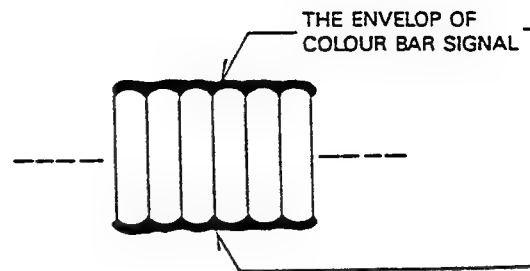


Fig. 22. Dot Movement Pattern

#### IV. Colour Decoder Adjustment For SECAM System

##### 1. Bell Filter Adjustment

- Apply a SECAM colour bar signal (60dB level) to the input.
- Connect an oscilloscope to Pin 27 of IC201.
- Adjust T203 to make the envelop of colour bar signal into flat. (Fig. 23)



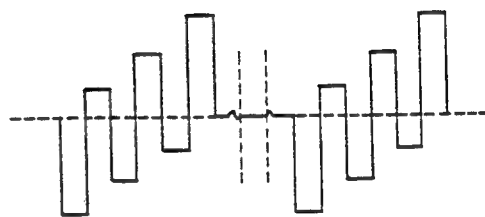
SECAM COLOUR BAR SIGNAL Fig. 23.

##### 2. Identifier Adjustment

- Apply a SECAM colour bar signal (60dB level) to the input.
- Connect a high impedance DC Voltmeter to Pin 26 of IC201.
- Adjust T204 to the indent filter voltage into maximum value ( $\sim 10V$ ).

##### 3. B-Y Demodulation

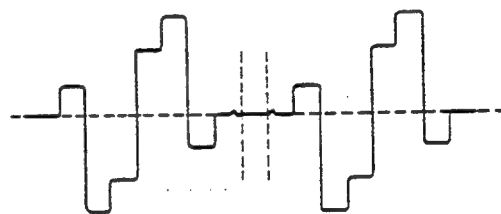
- Apply a SECAM colour bar signal to the input.
- Set Brightness, Contrast and Colour controls to the maximum.
- Connect an oscilloscope to Pin 2 of socket H.
- Adjust T201 to obtain a B-Y signal with correct chrominance output, as shown in Fig. 24.



B-Y SIGNAL Fig. 24.

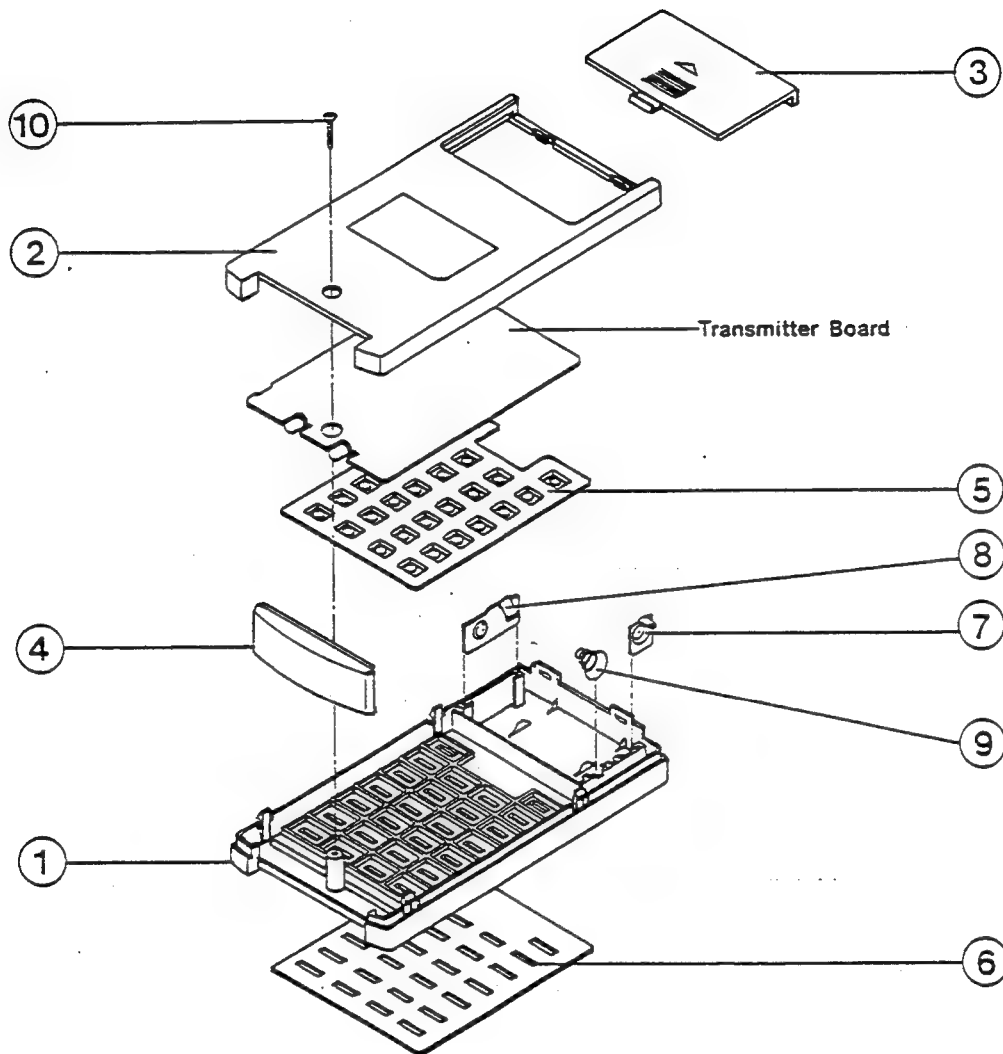
##### 4. R-Y Demodulation

- Apply a SECAM colour bar signal.
- Set Brightness, Contrast and Colour controls to maximum.
- Connect an oscilloscope to Pin 3 of socket H.
- Adjust T202 to obtain an R-Y signal with correct chrominance output, as shown in Fig. 25.



R-Y SIGNAL Fig. 25.

## REMOTE CONTROL UNIT



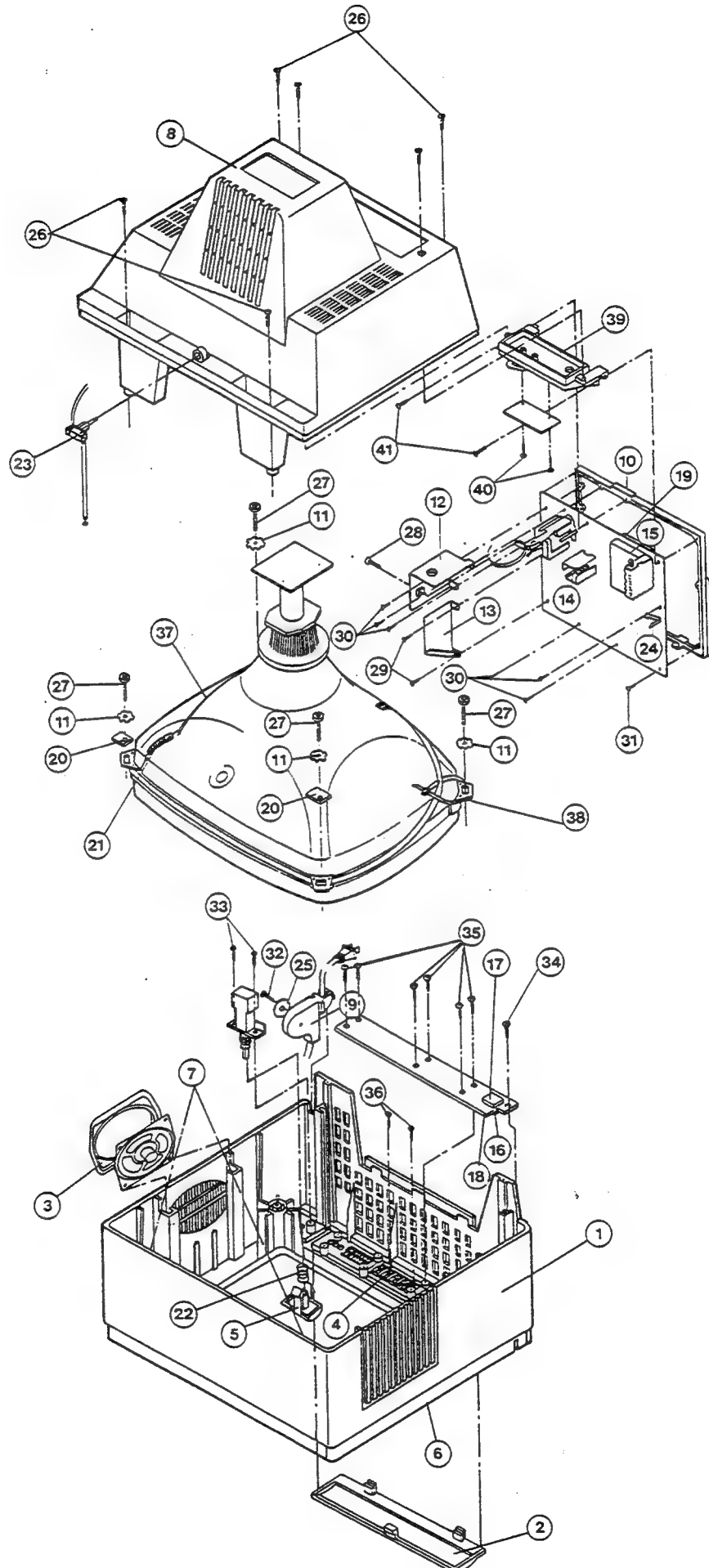
## MECHANICAL PART LIST

ITEM	PART NO.	DESCRIPTION
1.	A01-A0078-01	Top Cabinet
2.	A01-A0079-01	Bottom Cabinet
3.	A01-A0080-00	Battery Door
4.	A01-A0081-00	Infrared Lens
5.	D01-A0020-00	Rubber Contact Plate

ITEM	PART NO.	DESCRIPTION
6.	D00-A0049-00	Handset Inlay
7.	B00-A0025-00	Battery Contact Plate (+)
8.	B00-A0024-00	Battery Contact Plate (+/-)
9.	E00-A0009-00	Battery Contact Spring (-)
10.	M3P-T2601-08	Screw T2.6x8 P/H (+)



# EXPLODED VIEW OF MAIN UNIT

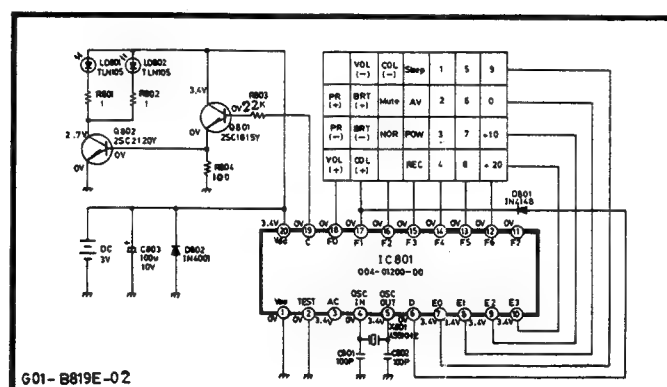
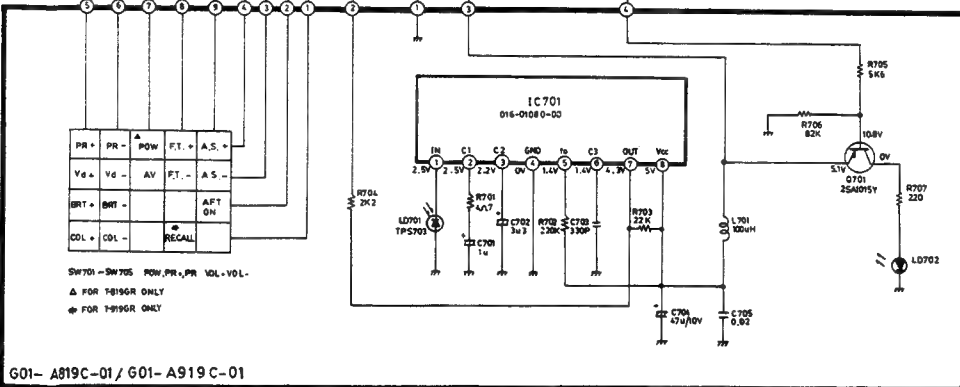
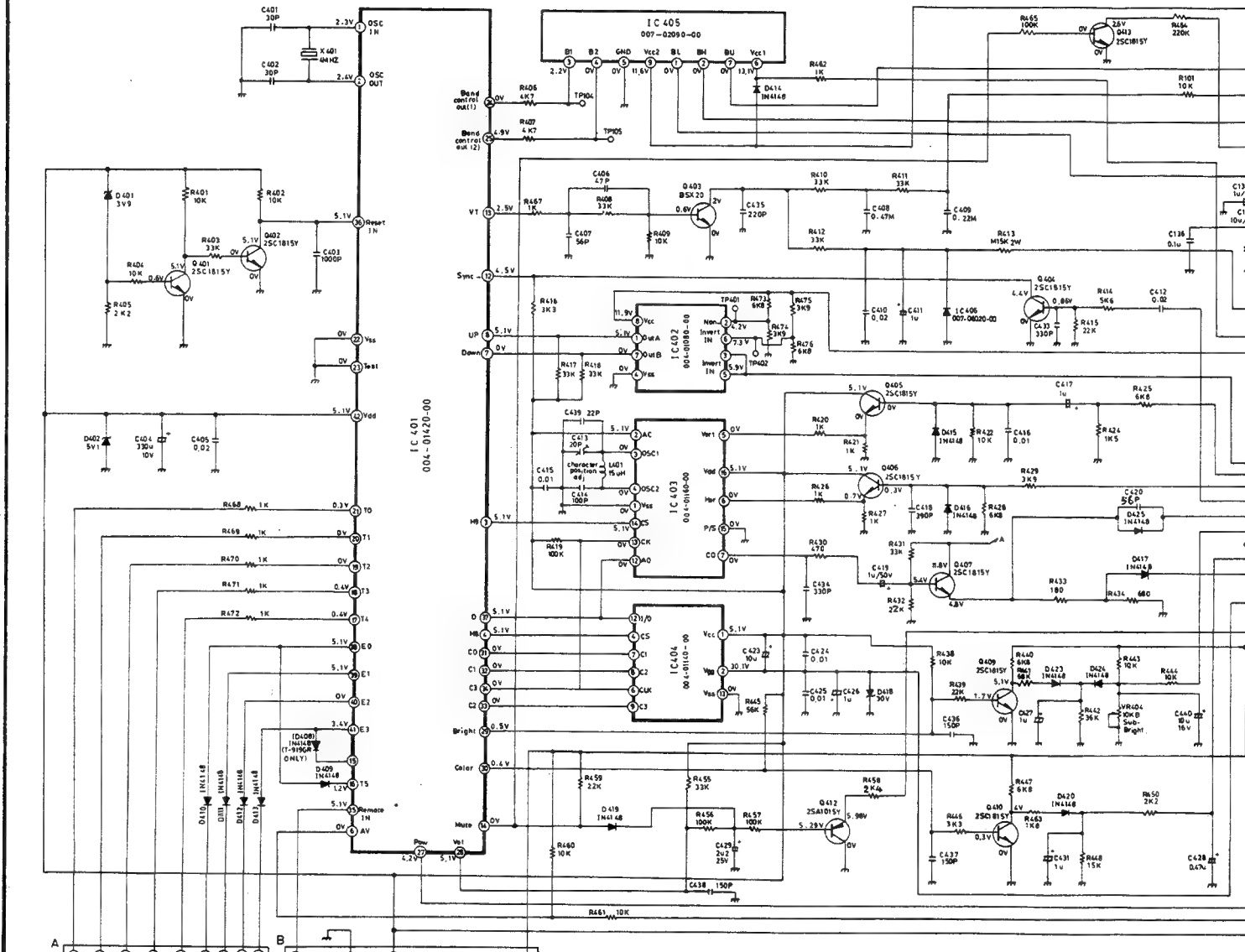


# MECHANICAL PARTS LIST FOR MAIN UNIT

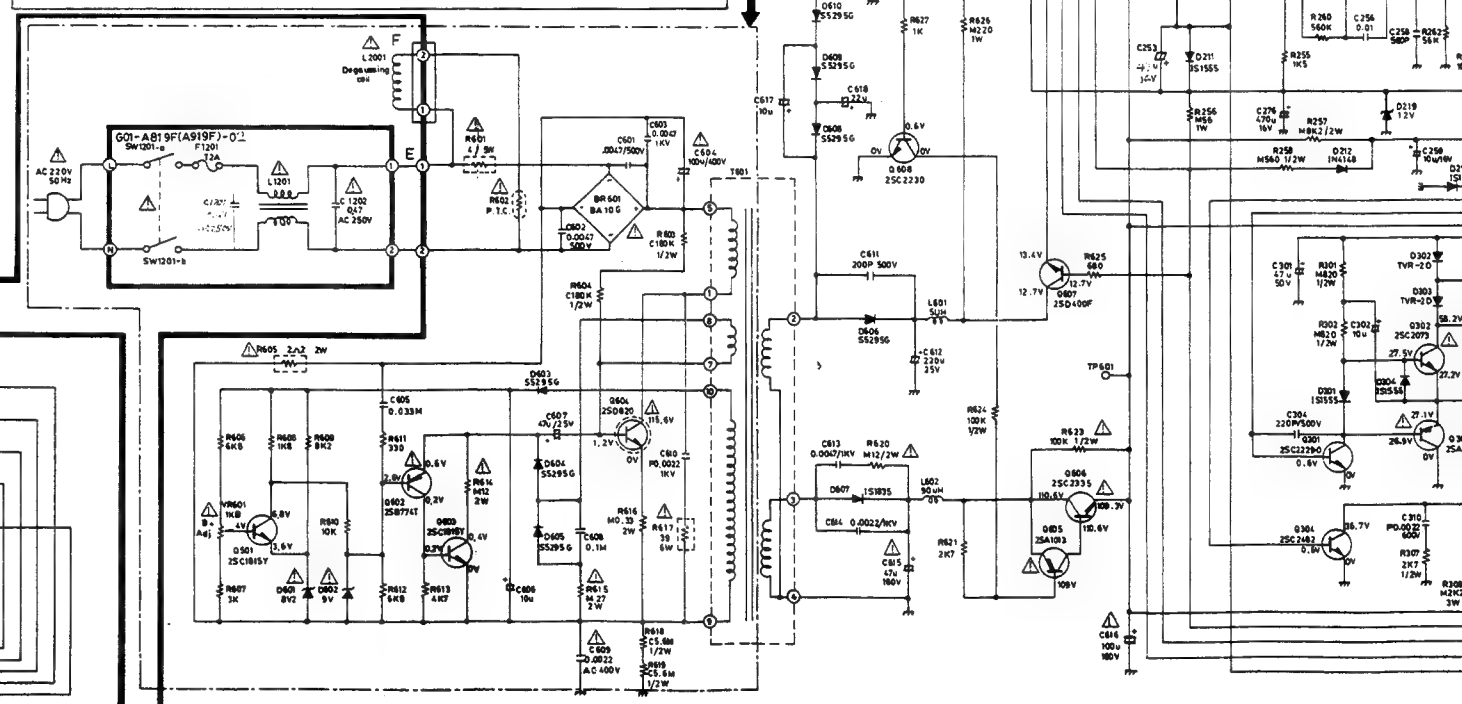
ITEM	PART NO.	DESCRIPTION
1	A01-A0088-01	FRONT CABINET-METALLIC DARK GRAY SPRAY W/SILK SCREEN
2	A01-A0089-01	PRESET DOOR-METALLIC DARK GRAY SPRAY W/SILK SCREEN
3	A01-A0090-00	SPEAKER HOLDER-BLACK MOULDED
4	A01-A0091-00	PUSH BUTTON-BLACK MOULDED
5	A01-A0092-00	POWER SW. KNOB-BLACK MOULDED
6	A01-A0093-00	INFRARED LENS
7	A01-A0094-00	CABINET MTG. HOLDER-BLACK MOULDED
8	A01-A0134-00	BACK CABINET-BLACK MOULDED
9	A01-A0009-00	AC CORD HOLDER-BLACK MOULDED
10	A03-80111-00	CHASSIS BRACKET-BLACK MOULDED
11	B01-A0001-01	METAL WASHER
12	B01-A0005-00	HEAT SINK BRACKET FOR POWER
13	B01-A0006-00	HEAT SINK FOR HORIZONTAL AMP.
14	B01-A0007-00	HEAT SINK TRANSISTOR
15	B01-A0008-00	PIF SHIELDING COVER
16	B00-A0027-00	SHIELD CAN 'A'
17	B00-A0028-00	SHIELD CAN 'B'
18	B00-A0029-00	SHIELD CAN 'C'
19	B00-A0041-00	SHIELD CAN
20	B00-A0052-00	METAL FIXER (FOR CRT FIXING)
21	E00-A0001-00	GROUNDING WIRE SPRING DIA. 7 X 14 FOR TWISTED WIRE
22	E00-A0011-00	POWER KNOB SPRING
23	F00-A0004-00	INDOOR ANTENNA-SINGLE TYPE (VHF) DIA. 8 X 200
24	J00-W0002-00	WIRE LUG
25	L00-P3514-F0	FIBRE WASHER
26	M1B-T3501-25	T3.5 X 25 P/H (+) FOR BACK/FRONT CAB. MTG.
27	M1B-T4001-25	T4 X 25 B/H (+) FOR CRT/FRONT CAB. MTG.
28	M1B-T4001-10	T4 X 10 B/H (+) FOR HEAT SINK/FLY BACK TRANS MTG.
29	M1P-T3001-12	T3 X 12 P/H (+) FOR HEAT SINK/CHASSIS BKT. MTG.
30	M1P-T3001-12	T3 X 12 P/H (+) FOR HEAT SINK/CHASSIS BKT. MTG.
31	M1P-T3001-08	T3 X 8 P/H (+) FOR MAIN P.C.B./CHASSIS BKT. MTG.
32	M1P-T3001-08	T3 X 8 P/H FOR AC CORD/AC CORD HOLDER MTG.
33	M1P-T3001-10	T3 X 10 P/H (+) FOR POWER SW./FRONT CAB. MTG.
34	M1B-T2600-10	T2.6 X 10 B/H (+) FOR CONTROL P.C.B./FRONT CAB. MTG.
35	M1B-T2600-06	T2.6 X 8 B/H (+) FOR CONTROL P.C.B./FRONT CAB. MTG.
36	M1B-T2600-06	T2.6 X 6 B/H (+) FOR PUSH BUTTON/FRONT CAB. MTG.
37	P01-01086-01	TWISTED WIRE L = 860 MM
38	A04-A0114-00	CABLE TIE L = 8"
39	A03-80135-00	JACK PLATE-BLACK MOULDED
40	M1P-T3001-08	T3 X 8 P/H (+) FOR AV BOARD/JACK PLATE MTG
41	M1B-T3001-12	T3 X 12 B/H (+) FOR JACK PLATE/P.C.B./CHASSIS BKT. MTG.

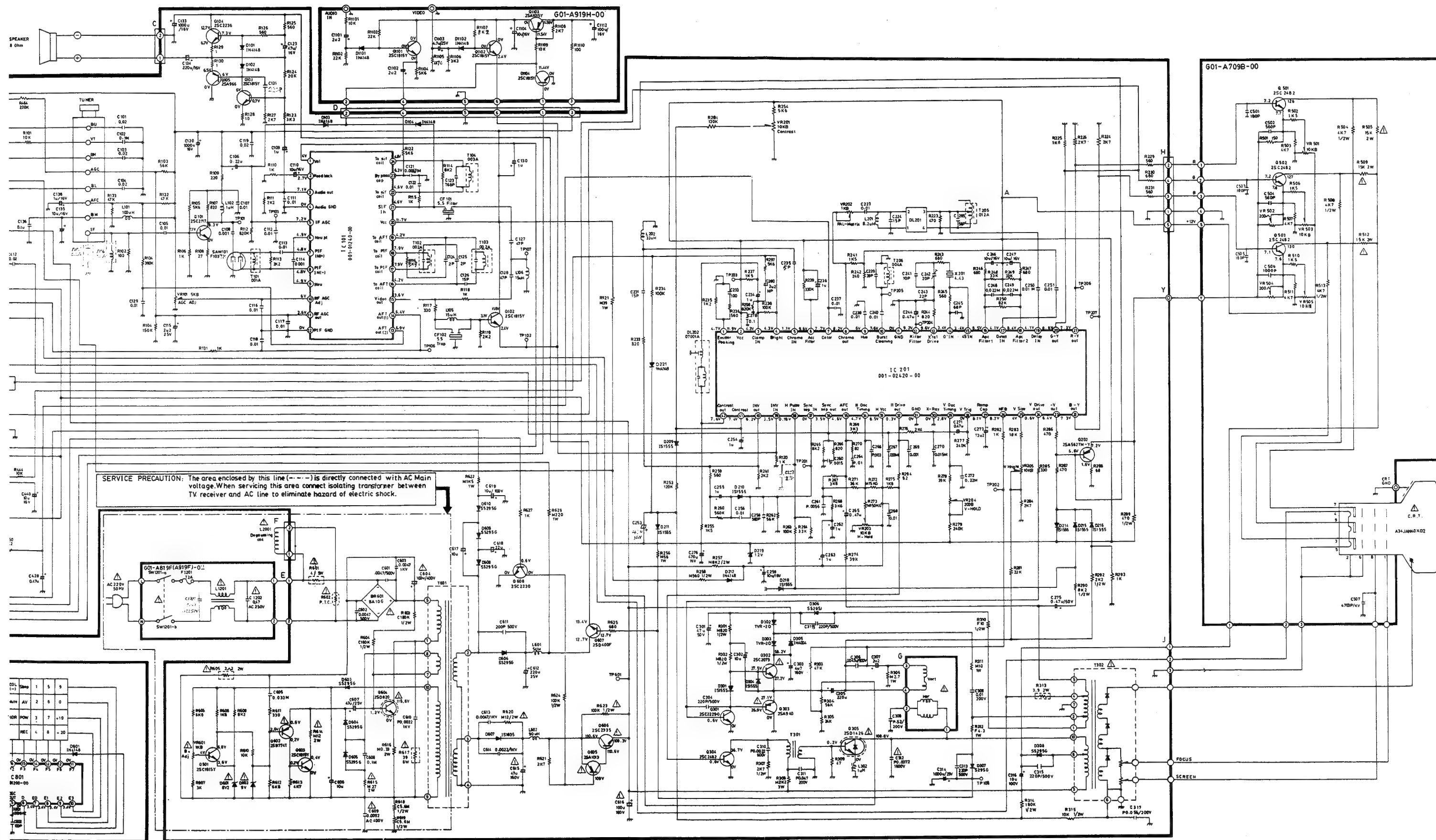
T-819GR / T-919GR(W/AV) FTZ

G01-A819A-01

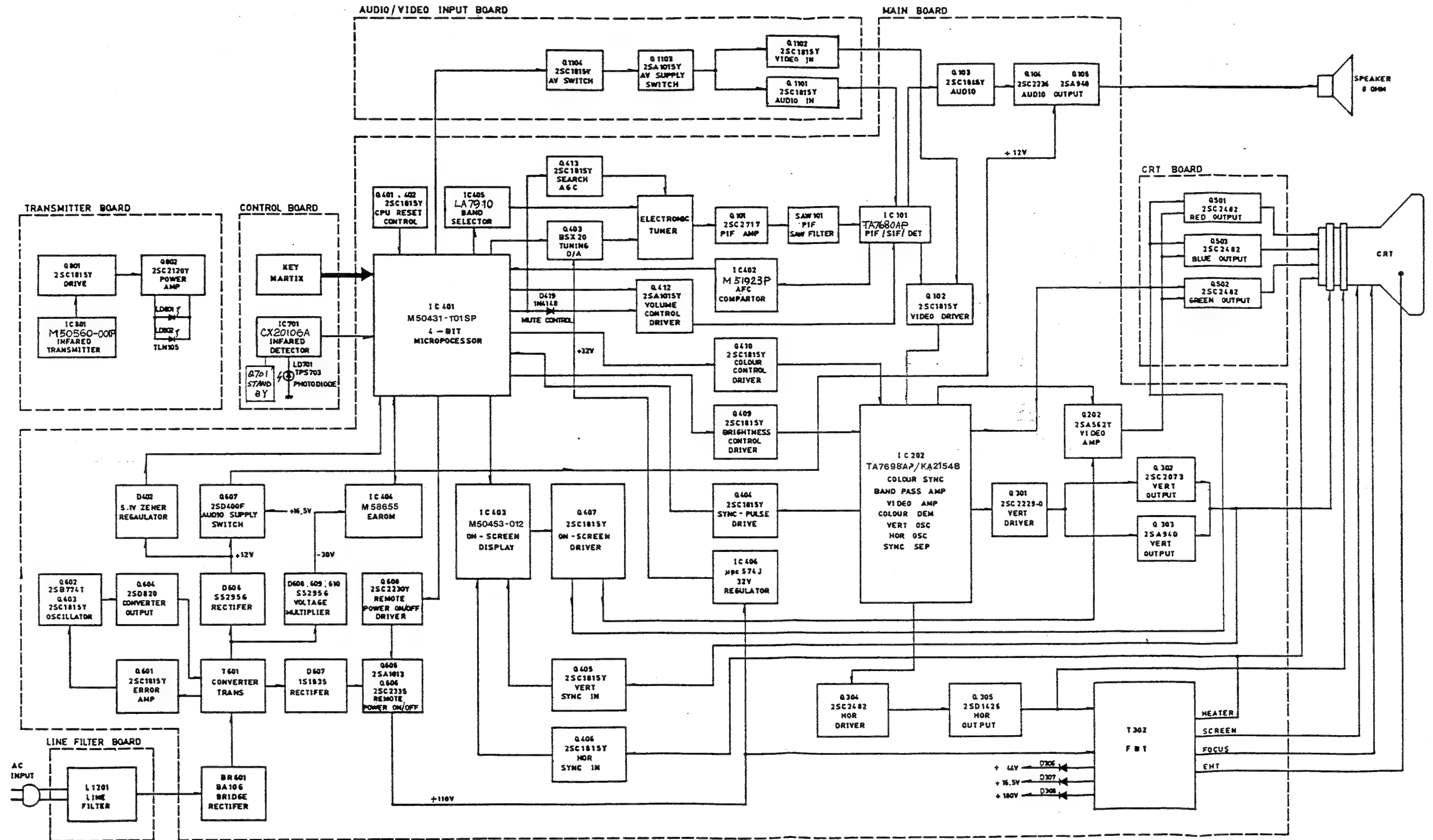


SERVICE PRECAUTION: The area enclosed by this line (---) is directly connected with AC Main voltage. When servicing this area connect isolating transformer between TV receiver and AC line to eliminate hazard of electric shock.





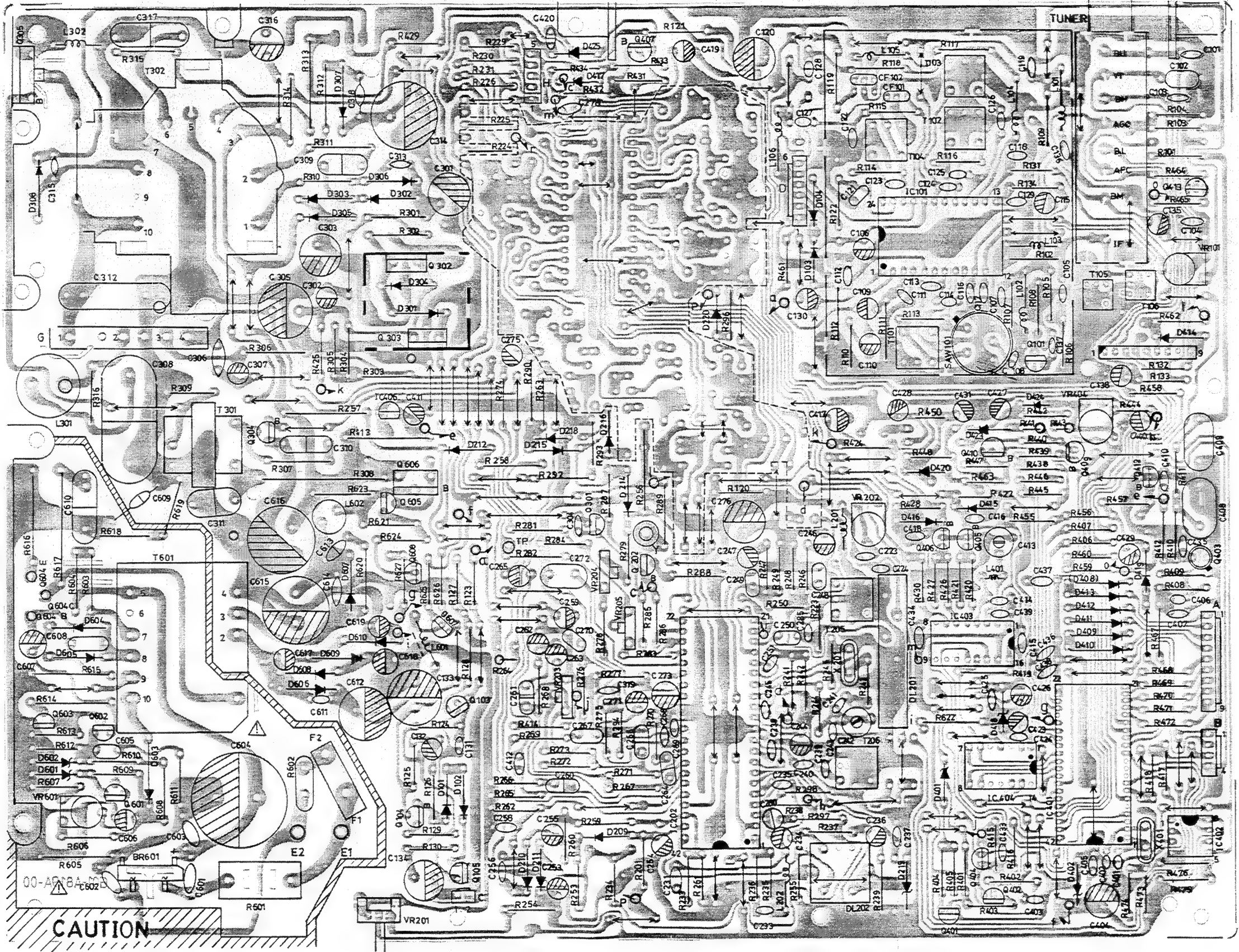
# BLOCK DIAGRAM



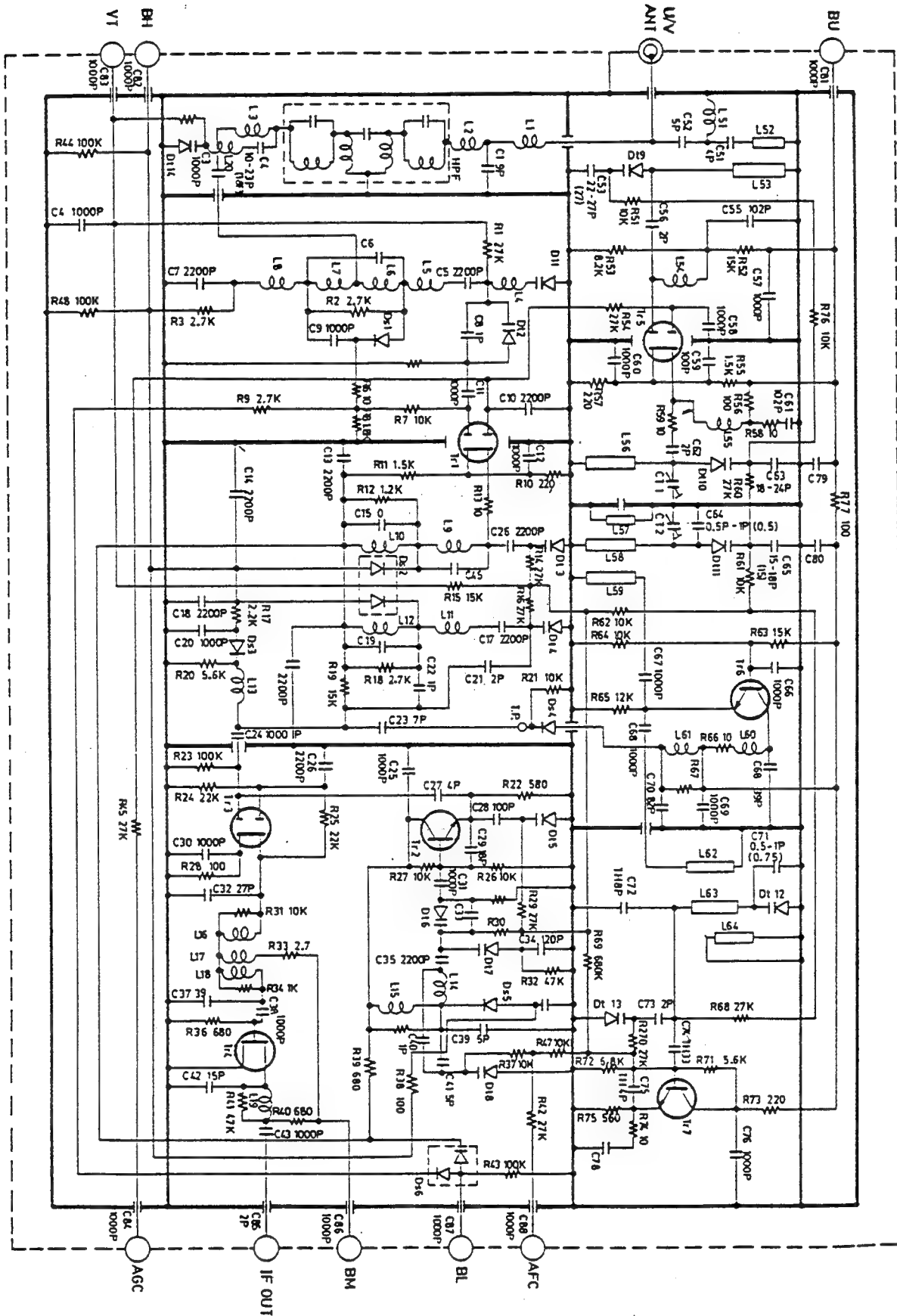


COMPONENT VIEW OF MAIN P.C. BOARD

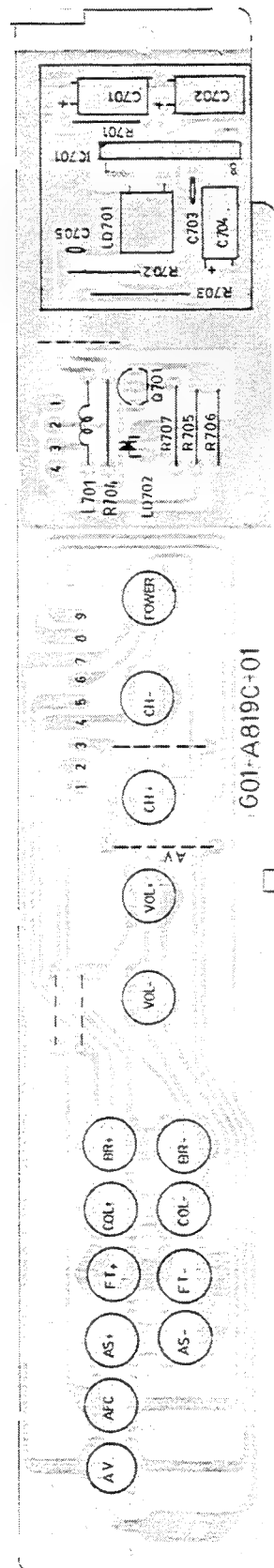
G01-A 819A-01



# TUNER CIRCUIT



# COMPONENT VIEW OF CONTROL P.C. BOARD





The diagram illustrates the layout of a CRT chassis, showing various components and their connections. The components are labeled as follows:

- VR501**, **VR502**, **VR504**, **VR505**: Variable resistors at the top.
- C505**: Capacitor below VR502.
- R503**: Resistor below C505.
- C502**: Capacitor to the right of R503.
- R501**: Resistor below R503.
- Q504**, **Q502**: Tubes or components in the center.
- R503**: Resistor below Q504.
- C501**: Capacitor to the left of Q504.
- GND**: Ground connection point.
- Q501**: Tube or component below Q504.
- SCREEN**: Screen connection point.
- C507**: Capacitor below Q501.
- R506**: Resistor below C507.
- R505**: Resistor to the left of R506.
- R506**: Resistor below R505.
- R510**: Resistor to the right of R506.
- Q503**: Tube or component to the right of R510.
- R507**: Resistor below Q503.
- C506**: Capacitor to the right of R507.
- C501**: Capacitor to the right of C506.
- C502**: Capacitor to the right of C501.
- C503**: Capacitor to the right of C502.
- C504**: Capacitor to the right of C503.
- C505**: Capacitor to the right of C504.
- C506**: Capacitor to the right of C505.
- C507**: Capacitor to the right of C506.
- C508**: Capacitor to the right of C507.
- C509**: Capacitor to the right of C508.
- C510**: Capacitor to the right of C509.
- C511**: Capacitor to the right of C510.
- C512**: Capacitor to the right of C511.
- C513**: Capacitor to the right of C512.
- C514**: Capacitor to the right of C513.
- C515**: Capacitor to the right of C514.
- C516**: Capacitor to the right of C515.
- C517**: Capacitor to the right of C516.
- C518**: Capacitor to the right of C517.
- C519**: Capacitor to the right of C518.
- C520**: Capacitor to the right of C519.
- C521**: Capacitor to the right of C520.
- C522**: Capacitor to the right of C521.
- C523**: Capacitor to the right of C522.
- C524**: Capacitor to the right of C523.
- C525**: Capacitor to the right of C524.
- C526**: Capacitor to the right of C525.
- C527**: Capacitor to the right of C526.
- C528**: Capacitor to the right of C527.
- C529**: Capacitor to the right of C528.
- C530**: Capacitor to the right of C529.
- C531**: Capacitor to the right of C530.
- C532**: Capacitor to the right of C531.
- C533**: Capacitor to the right of C532.
- C534**: Capacitor to the right of C533.
- C535**: Capacitor to the right of C534.
- C536**: Capacitor to the right of C535.
- C537**: Capacitor to the right of C536.
- C538**: Capacitor to the right of C537.
- C539**: Capacitor to the right of C538.
- C540**: Capacitor to the right of C539.
- C541**: Capacitor to the right of C540.
- C542**: Capacitor to the right of C541.
- C543**: Capacitor to the right of C542.
- C544**: Capacitor to the right of C543.
- C545**: Capacitor to the right of C544.
- C546**: Capacitor to the right of C545.
- C547**: Capacitor to the right of C546.
- C548**: Capacitor to the right of C547.
- C549**: Capacitor to the right of C548.
- C550**: Capacitor to the right of C549.
- C551**: Capacitor to the right of C550.
- C552**: Capacitor to the right of C551.
- C553**: Capacitor to the right of C552.
- C554**: Capacitor to the right of C553.
- C555**: Capacitor to the right of C554.
- C556**: Capacitor to the right of C555.
- C557**: Capacitor to the right of C556.
- C558**: Capacitor to the right of C557.
- C559**: Capacitor to the right of C558.
- C560**: Capacitor to the right of C559.
- C561**: Capacitor to the right of C560.
- C562**: Capacitor to the right of C561.
- C563**: Capacitor to the right of C562.
- C564**: Capacitor to the right of C563.
- C565**: Capacitor to the right of C564.
- C566**: Capacitor to the right of C565.
- C567**: Capacitor to the right of C566.
- C568**: Capacitor to the right of C567.
- C569**: Capacitor to the right of C568.
- C570**: Capacitor to the right of C569.
- C571**: Capacitor to the right of C570.
- C572**: Capacitor to the right of C571.
- C573**: Capacitor to the right of C572.
- C574**: Capacitor to the right of C573.
- C575**: Capacitor to the right of C574.
- C576**: Capacitor to the right of C575.
- C577**: Capacitor to the right of C576.
- C578**: Capacitor to the right of C577.
- C579**: Capacitor to the right of C578.
- C580**: Capacitor to the right of C579.
- C581**: Capacitor to the right of C580.
- C582**: Capacitor to the right of C581.
- C583**: Capacitor to the right of C582.
- C584**: Capacitor to the right of C583.
- C585**: Capacitor to the right of C584.
- C586**: Capacitor to the right of C585.
- C587**: Capacitor to the right of C586.
- C588**: Capacitor to the right of C587.
- C589**: Capacitor to the right of C588.
- C590**: Capacitor to the right of C589.
- C591**: Capacitor to the right of C590.
- C592**: Capacitor to the right of C591.
- C593**: Capacitor to the right of C592.
- C594**: Capacitor to the right of C593.
- C595**: Capacitor to the right of C594.
- C596**: Capacitor to the right of C595.
- C597**: Capacitor to the right of C596.
- C598**: Capacitor to the right of C597.
- C599**: Capacitor to the right of C598.
- C600**: Capacitor to the right of C599.
- C601**: Capacitor to the right of C600.
- C602**: Capacitor to the right of C601.
- C603**: Capacitor to the right of C602.
- C604**: Capacitor to the right of C603.
- C605**: Capacitor to the right of C604.
- C606**: Capacitor to the right of C605.
- C607**: Capacitor to the right of C606.
- C608**: Capacitor to the right of C607.
- C609**: Capacitor to the right of C608.
- C610**: Capacitor to the right of C609.
- C611**: Capacitor to the right of C610.
- C612**: Capacitor to the right of C611.
- C613**: Capacitor to the right of C612.
- C614**: Capacitor to the right of C613.
- C615**: Capacitor to the right of C614.
- C616**: Capacitor to the right of C615.
- C617**: Capacitor to the right of C616.
- C618**: Capacitor to the right of C617.
- C619**: Capacitor to the right of C618.
- C620**: Capacitor to the right of C619.
- C621**: Capacitor to the right of C620.
- C622**: Capacitor to the right of C621.
- C623**: Capacitor to the right of C622.
- C624**: Capacitor to the right of C623.
- C625**: Capacitor to the right of C624.
- C626**: Capacitor to the right of C625.
- C627**: Capacitor to the right of C626.
- C628**: Capacitor to the right of C627.
- C629**: Capacitor to the right of C628.
- C630**: Capacitor to the right of C629.
- C631**: Capacitor to the right of C630.
- C632**: Capacitor to the right of C631.
- C633**: Capacitor to the right of C632.
- C634**: Capacitor to the right of C633.
- C635**: Capacitor to the right of C634.
- C636**: Capacitor to the right of C635.
- C637**: Capacitor to the right of C636.
- C638**: Capacitor to the right of C637.
- C639**: Capacitor to the right of C638.
- C640**: Capacitor to the right of C639.
- C641**: Capacitor to the right of C640.
- C642**: Capacitor to the right of C641.
- C643**: Capacitor to the right of C642.
- C644</**

The diagram illustrates a complex electronic circuit, possibly a vintage radio receiver or amplifier. Key components include:

- Vacuum Tubes:** 6X4 (rectifier), 6AR5 (audio amplifier), and 6AV6 (tuner/detector).
- Power Supply Section (Top Right):** Features a transformer with multiple taps (0-250V, 0-500V, 0-1000V) and a large electrolytic filter capacitor (C105). A 500K resistor (R105) is connected between the 500V tap and ground.
- Rectification and Filtering:** The 6X4 tube rectifies AC from the transformer. The resulting DC is filtered by C105 and regulated by a network of resistors (R106, R107, R108, R109, R110, R111, R112, R113, R114, R115, R116, R117) and capacitors (C106, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117, C118).
- Audio Amplification Stage:** The 6AR5 tube amplifies the audio signal. Its grid is biased by a network of resistors (R101, R102, R103, R104, R105, R106, R107, R108, R109, R110, R111, R112, R113, R114, R115, R116, R117) and capacitors (C101, C102, C103, C104, C105, C106, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117, C118).
- Output Stage:** The amplified signal drives a speaker through a coupling capacitor (C101) and a series of resistors (R101, R102, R103, R104, R105, R106, R107, R108, R109, R110, R111, R112, R113, R114, R115, R116, R117).
- Tuning and Control:** The 6AV6 tube controls the tuning of the circuit. Its grid is biased by a network of resistors (R101, R102, R103, R104, R105, R106, R107, R108, R109, R110, R111, R112, R113, R114, R115, R116, R117) and capacitors (C101, C102, C103, C104, C105, C106, C107, C108, C109, C110, C111, C112, C113, C114, C115, C116, C117, C118).

The circuit is meticulously labeled with component values and pin numbers, indicating its precise configuration.

**WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION",  
SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.**

**CAUTION:** The areas marks  $\triangle$  in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

#### ABBREVIATIONS

**Resistors:** CF — Carbon Film Resistor

CC — Carbon Composition Resistor

MF — Metal Film Resistor

MO — Metal Oxide Resistor

FU — Fusible Resistor

NI — Non-Inflammable Resistor

SF — Semi-fixed Resistor

**Capacitors:** CE — Ceramic Capacitor

PO — Polyester Film Capacitor

PP — Polypropylene Film Capacitor

EL — Electrolytic Capacitor

TC — Temperature Compensating Capacitor

MP — Metal Polyester Film Capacitor

AC — AC Capacitor

**Wire:** SJ — Single Jumper Wire AWG 22 (UL1007)

STJ — Strand Jumper Wire AWG 22 (UL1007)

ST — Strand Jumper Wire AWG 24 (UL1007)

STW — Strand Jumper Wire AWG 26 (UL1007)

**Remark:**

1) All resistors are  $\frac{1}{2}W$ ,  $\pm 5\%$  unless otherwise noted.

2) All capacitors are 50WV capacitor unless otherwise noted

# ELECTRICAL PARTS LIST

SCHEMATIC NO.	PART NO.	DESCRIPTION	SCHEMATIC NO.	PART NO.	DESCRIPTION
*** MAIN P. C. B. ASSEMBLY ***			SEMI-FIXED RESISTOR		
TRANSISTOR			VR202, 405, 601	C01-B103B-C0	1KB MATRIX, B+, SUB-COLOR
Q101	A01-C717A-00	2SC2717	VR101	C01-B503B-C0	5KB AGC
Q103, 201, 401, 402, 404, 405, 406, 407, 409, 410, 413, 601, 603, 102	A01-C815E-00	2SC1815-Y	VR203, 205	C02-A104B-C0	10KB H-HOLD V-HEIGHT
Q301	A01-C229D-00	2SC2229-0	VR204	C02-A205B-C0	200KB V-HOLD
Q202	A01-A562E-00	2SA562-TMY	VR201	**C07-C104B-B0	10MM ROTARY VR10KB CONTRAST
Q302	A01-C073D-00	2SC2073	VR404	**C01-B104B-C0	10KB SUB-BRIGHTNESS (HORI-TYPE)
Q303	A01-A940D-00	2SA940	CARBON FILM RESISTOR +/-5% 1/4W		
Q304	A01-C482D-00	2SC2482	R295	D01-A056C-D0	5.6 OHM
Q305	A01-D426A-00	2SD1426	R129, 130	D01-A010C-D0	1 OHM
Q602	A01-B774D-00	2SB774-T	R128	D01-A100C-D0	10 OHM
Q604	**A01-D431A-00	2SD1431	R108	D01-A270C-D0	27 OHM
Q608	A01-C230E-00	2SC2230-AY	R309	D01-A470C-D0	47 OHM
Q607	A03-D400F-00	2SD400F	R288	D01-A680C-D0	68 OHM
Q605	A01-A013E-00	2SA1013Y	R270, 294	D01-A820C-D0	82 OHM
Q606	A02-C335C-00	2SC2335 ALTERNATE BUV46 (A01-V046C-00)	R102,	D01-A101C-D0	100 OHM
Q104	A01-C236D-00	2SC2236-0	R229, 230, 231	D01-A151C-D0	150 OHM
Q105	A01-A966D-00	2SA966-0	R433	D01-A181C-D0	180 OHM
Q412	A01-A015E-00	2SA1015Y	R109, 206, 243	D01-A221C-D0	220 OHM
Q403	A06-S002D-00	BSX20	R242	D01-A241C-D0	240 OHM
DIODE			R117, 214, 285, 611	D01-A331C-D0	330 OHM
D101, 102, 211, 212, 220, 409, 410, 411, 412, 413, 221, 414, 415, 416, 417, 419, 420, 421, 425, 423, 424, 104	B01-01148-00	1N4148	R209	D01-A391C-D0	390 OHM
D201, 203, 204, 205, 206, 207, 209, 210, 213, 214, 215, D216, 218, 301, 304	B01-01555-00	1S1555	R223, 286, 287, 430	D01-A471C-D0	470 OHM
D307, 308, 603, 604, 605, 606, 608, 609, 610	B01-02529-00	S5295G	R125, 126, 236, 245, 259	D01-A561C-D0	560 OHM
D306	B01-02529-01	S5295J	R211, 216, 227, 228, 246, 247, 434, 625	D01-A681C-D0	680 OHM
D607	B01-02835-00	1S1835	R107, 233, 244, 266	D01-A821C-D0	820 OHM
D302, 303	B01-02002-00	TVR-2D	R106, 110, 115, 118, 131, 240, 251, 252, 282, 420, 421, 120	D01-A102C-D0	1 KOHM
BR601	B01-01010-00	DBA10G	R426, 427, 462, 467, 468, 469, 470, 471, 472, 627, 235	D01-A122C-D0	1.2 KOHM
D305	B01-01004-00	1N4004S	R205,	D01-D152C-D0	1.5 KOHM
D202, 217, 219	B01-04120-00	12 V ZENER (GZA 12Y)	R208, 213, 237, 241, 255, 424,		
D601	B01-04082-00	8.2 V ZENER (GZA 8.2Y)	R207, 212, 275, 608	D01-A182C-D0	1.8 KOHM
D602	B01-04090-00	9.1V ZENER (GZA 9.1Y)	R111, 113, 119	D01-A222C-D0	2.2 KOHM
D401	**B01-04039-00	3.9V ZENER (UZ 3.9B)	261, 291, 405		
D402	**B01-04051-00	5.1V ZENER (GAZ 5.1Y)	R276, 458	D01-A242C-D0	2.4 KOHM
D418	**B01-04300-00	30V ZENER (GZA 30Y)	R127, 202, 284, 621	D01-A272C-D0	2.7 KOHM
D103	B04-08060-00	1N60	R123, 210, 215, 224, 225, 226, 269, 416, 446, 607	D01-A332C-D0	3.3 KOHM
			R267, 268	D01-A362C-D0	3.6 KOHM
			R116, 232, 429, 474, 475	D01-A392C-D0	3.9 KOHM

# ELECTRICAL PARTS LIST

SCHEMATIC NO.	PART NO.	DESCRIPTION
R406, 407, 613	D01-A472C-D0	4.7 KOHM
R105, 122, 297, 414	D01-A562C-D0	5.6 KOHM
R264, 425, 428, 440, 450, 473, 476, 606, 612	D01-A682C-D0	6.8 KOHM
R114, 265, 449, 609	D01-A822C-D0	8.2 KOHM
R101, 217, 219, 293, 401, 402, 404, 409, 422, 463, 438, 460, 461	D01-A103C-D0	10 KOHM
R443, 444, 447, 610		
R280	D01-A153C-D0	15 KOHM
R283	D01-A183C-D0	18 KOHM
R124	D01-A203C-D0	20 KOHM
R220, 281, 415, 439, 459	D01-A223C-D0	22 KOHM
R305, 448	D01-A243C-D0	24 KOHM
R274,	D01-A273C-D0	27 KOHM
R221, 222, 248, 249, 403, 408, 410, 411, 412, 417, 418	D01-A333C-D0	33 KOHM
R431, 432, 455		
R271, 442	D01-A363C-D0	36 KOHM
R203, 278	D01-A393C-D0	39 KOHM
R132, 133, 303	D01-A473C-D0	47 KOHM
R103, 204, 262, 304, 445	D01-A563C-D0	56 KOHM
R441	D01-A683C-D0	68 KOHM
R250	D01-A823C-D0	82 KOHM
R201, 218, 238, 263, 296, 419, 234	D01-A104C-D0	100 KOHM
456, 457, 465		
R104, 253	D01-A124C-D0	120 KOHM
R464	D01-A224C-D0	220 KOHM
R277, 279	D01-A244C-D0	240 KOHM
R239	D01-A334C-D0	330 KOHM
R134	D01-A394C-D0	390 KOHM
R260	D01-A564C-D0	560 KOHM
R112, 298	D01-A824C-D0	820 KOHM
<b>CARBON FILM RESISTOR +/-5% 1/2W</b>		
R289	D01-A361C-F0	360 OHM
R307	D01-A272C-F0	2.7 KOHM
R315	D01-A103C-F0	10 KOHM
R623, 624	D01-A104C-F0	100 KOHM
R314	D01-A154C-F0	150 KOHM
R622	D01-A153C-F0	1.5 KOHM
<b>METAL FILM RESISTOR</b>		
R272	D00-C153B-D0	15 KOHM +/-2% 1/4W
R273	D00-C154B-D0	150 KOHM +/-2% 1/4W

SCHEMATIC NO.	PART NO.	DESCRIPTION
<b>METAL OXIDE RESISTOR</b>		
R258	D04-D561C-F0	560 OHM +/-5% 1/2W
R301, 302	D04-D821C-F0	820 OHM +/-5% 1/2W
R292	D04-D222C-F0	2.2 kohm +/-5% 1/2W
R306	D04-D027C-G0	2.7 OHM +/-5% 1W
R311	D04-D100C-G0	10 OHM +/-5% 1W
R121	D04-D390C-G0	39 OHM +/-5% 1W
R626	D04-D221C-G0	220 OHM +/-5% 1W
R290	D04-D222C-G0	2.2 KOHM +/-5% 1W
R616	D04-D003C-H0	0.33 OHM +/-5% 2W
R614, 260	D04-D120C-H0	12 OHM +/-5% 2W
R256, 615	D04-D270C-H0	27 OHM +/-5% 2W
R257	D04-D822C-H0	8.2 KOHM +/-5% 2W
R413	D04-D153C-H0	15 KOHM +/-5% 2W
R308	D04-D222C-I0	2.2 KOHM +/-5% 3W
<b>FUSIBLE RESISTOR</b>		
R310	D03-E100C-F0	10 OHM +/-5% 1/2W
R312	D03-E043C-G0	4.3 OHM +/-5% 1W
<b>NON-INFLAMMABLE RESISTOR</b>		
R601	D03-G040D-J0	4 OHM +/-10% 5W KW-SQZ
R605	D03-G022D-H0	2.2 OHM +/-10% 2W KW-KNP
R313	D03-G039D-H0	3.9 OHM +/-10% 2W KW-KNP
R617	D03-G390D-K0	39 OHM +/-10% 6W KW-KNP
R602	D06-H300Z-00	P.T.C. THERMISTOR
<b>CARBON COMPOSITION RESISTOR</b>		
R618, 619	D05-B565D-F0	5.6 MOHM +/-10% 1/2W
R603, 604	D05-B184D-F0	180 KOHM +/-10% 1/2W
C242, 413	E04-B200A-00	TRIMMER CAPACITOR 20PF
<b>CERAMIC CAPACITOR</b>		
C124, 125	F01-C020F-A0	2PF 50V +/-0.25PF
C281	F01-C050F-C0	5PF 50V +/-5%
C241	F01-C100F-C0	10PF 50V +/-5%
C126, 224, 231	F01-C150F-C0	15PF 50V +/-5%
C243, 439	F01-C220F-C0	22PF 50V +/-5%
C137, 257	F01-C270F-C0	27PF 50V +/-5%
C401, 402	F01-C300F-C0	30PF 50V +/-5%
C202	F01-C330F-C0	33PF 50V +/-5%
C127, 128, 406	F01-C470F-C0	47PF 50V +/-5%
C212, 235, 407	F01-C560F-C0	56PF 50V +/-5%
C207, 245	F01-C680F-C0	68PF 50V +/-5%
C206, 211, 239	F01-C390F-C0	39PF 50V +/-5%
C429	F01-C820F-C0	82PF 50V +/-5%
C233, 414	F01-C101F-C0	100PF 50V +/-5%
C222, 437, 438	F01-C151F-C0	150PF 50V +/-5%
C282, 283, 284	F01-C201F-C0	200PF 50V +/-5%
C205, 210, 229, 230, 274, 435	F01-C221F-C0	220PF 50V +/-5%
C209, 214, 433, 434	F01-C331F-C0	330PF 50V +/-5%
C418	F01-C391F-C0	390PF 50V +/-5%
C258	F01-C561F-C0	560PF 50V +/-5%

# ELECTRICAL PARTS LIST

SCHEMATIC NO.	PART NO.	DESCRIPTION	SCHEMATIC NO.	PART NO.	DESCRIPTION
C105, 107, 111, 112, 113, 116, 117, 118, 122, 129, 201, C204, 217, 218, 219, 221, 223, 237, 238, 240 251, 256 C268, 415, 416, 424, 425	F01-C103F-G0	0.01UF 50V +80-20%	C132, 253 C134, 279 C276 C120, 133 C607 C612 C314 C273 C106 C244, 265, 275, 428, 271	F01-E476C-E0 F01-E227C-E0 F01-E477C-E0 F01-E108C-E0 F01-E476D-E0 F01-E227D-E0 F01-E228D-E0 F01-E225F-D0 F01-E224F-E0 F01-E474F-E0	47UF 16V +/-20% 220UF 16V +/-20% 470UF 16V +/-20% 1000UF 16V +/-20% 47UF 25V +/-20% 220UF 25V +/-20% 1000UF 25V +/-20% 2.2UF 50V +/-10% 0.22UF 50V +/-20% 0.47UF 50V +/-20%
C136, 232, 278 C101, 103, 104, 119, 405, 410, 412	F01-C104F-G0 F01-C203F-G0	0.1UF 50V +80-20% 0.02UF 50V +80-20%	C109, 130, 138, 203, 225, 226, 227, 234, 236, 254, 255, C262, 263, 411, 417, 426, 419, 427, 431	F01-E105F-E0	1UF 50V +/-20%
C108, 114, 208, 213, 269, 403, 436	F01-C102F-D0	1000PF 50V +/-10%	C262, 263, 411, 417, 426, 419, 427, 431		
C304, 313, 315, 318, 611, 131	F05-C221N-D0	220PF 500V +/-10%	C115, 307, 429 C280 C302, 423, 606, 617	F01-E225F-E0 **F01-N225F-E0 F01-E106F-E0	2.2UF 50V +/-20% 2.2UF 50V N.P. +/-20% 10UF 50V +/-20%
C306, 601, 602 C614 C603, 613 C609	F05-C472N-D0 F05-C2220-D0 F05-C4720-D0 F05-C222W-E0	0.0047UF 500V +/-10% 0.0022UF 1KV +/-10% 0.0047UF 1KV +/-10% AC CAPACITOR 0.0022UF AC400V +/-20%	C618 C301 C305 C316, 619 C303 C615 C616 C604 PCB001	F01-E226F-E0 F01-E476F-E0 F01-E227F-E0 F01-E106H-F0 F01-E475I-F0 F01-E476I-F0 F01-E107I-F0 F01-E107M-F0 **G01-A819A-00	22UF 50V +/-20% 47UF 50V +/-20% 220UF 50V +/-20% 10UF 100V +/-20% 4.7UF 160V +50-10% 47UF 160V +50-10% 100UF 160V +50-10% 100UF 400V +50-10% MAIN P.C. BOARD 291MM X 219MM X 1.6MM
<b>POLYESTER FILM CAPACITOR</b>			L102 L104 L201 L105, 106, 401 L202 L101 L302 L602 L601 T101 T102, 103 T104 T205	H05-0102A-00 H05-0103A-00 H05-0104A-00 H05-0105A-00 H05-0106A-00 H05-0111A-00 **H13-0203A-00 H02-0101A-00 H02-1031A-00 H01-1301A-00 H01-1302A-00 H01-1303A-00 H01-1401A-00	PEAKING COIL 1UH PEAKING COIL 5.6UH PEAKING COIL 8.2UH PEAKING COIL 15UH PEAKING COIL 33UH PEAKING COIL 100UH CHOKE COIL 1UH CHOKE COIL 90UH CHOKE COIL 5UH PIF MATCHING COIL PIF DET COIL SIF DET COIL DELAY LINE MATCHING COIL
C248, 249, 250 C267, 605 C102, 220, 608 C272, 409 C270 C408 C121	F11-M223H-D0 F11-M333H-D0 F11-M104H-D0 F11-M224H-D0 F11-M153H-D0 F11-M474H-D0 F11-M332H-D0	0.022UF 100V +/-10% 0.033UF 100V +/-10% 0.1UF 100V +/-10% 0.22UF 100V +/-10% 0.015UF 100V +/-10% 0.47UF 100V +/-10% 0.0033UF 100V +/-10%	T206 T203 T204 T201, 202 DL202 T105, 106 T301	H01-1402A-00 H01-1403A-00 H01-1404A-00 H01-1405A-00 H01-0701A-00 H01-1801A-00 I01-0401A-00	BURST CLEANING COIL BELL FILTER COIL IDENT COIL DISCRI BURST Y-DELAY LINE 7MM TRAP COIL HORIZONTAL DRIVE TRANSFORMER
<b>POLYPROPYLENE FILM CAPCITOR (B TYPE)</b>			T302 T601	I12-0501A-00 I07-0601A-00	FLYBACK TRANSFORMER CF65A SWITCHING TRANSFORMER
C260 C261 C266 C264	F08-D152F-C0 F08-D562F-C0 F08-D302F-C0 F08-D103F-C0	0.0015UF 50V +/-5% 0.0056UF 50V +/-5% 0.003UF 50V +/-5% 0.01UF 50V +/-5%			
<b>POLYPORPYLENE FILM CAPACITOR</b>					
C310 C309 C311 C317 C308 C312 C610	F08-P222N-D0 F08-P103K-D0 F08-P473K-D0 F08-P563K-D0 F08-P524K-D0 F08-P722P-C0 F08-P2220-D0	0.0022UF 630V +/-10% 0.01UF 200V +/-10% 0.047UF 200V +/-10% 0.056UF 200V +/-10% 0.52UF 200V +/-10% 0.0072UF 1.6KV +/-5% 0.0022UF 1200V +/-10%			
<b>T-C CERAMIC CAPACITOR</b>					
C123	F01-L680F-C0	68PF 50V +/-5%			
<b>ELECTROLYTIC CAPACITOR (SINGLE ENDED TYPE)</b>					
C404	F01-E337B-E0	330UF 10V +/-20%			
C110, 135, 215, 216, 228, 246, 247, 259, 277, 440	F01-E106C-E0	10UF 16V +/-20%			

# ELECTRICAL PARTS LIST

SCHEMATIC NO.	PART NO.	DESCRIPTION
TAIKO TL-25 V-TYPE CONNECTOR		
SOCKET C	J05-0102A-00	2 PIN WAFER TL-25P-02-V1
SOCKET B	**J05-0104A-00	4 PINS WAFER TL-25P-04-V1
SOCKET A	**J05-0109A-00	9 PINS WAFER TL-25P-09-V1
SOCKET Y	J03-0401A-00	SMK M-1 CONNECTOR WAFER 1 PIN
SOCKET G	J03-0406A-00	SMK M-1 CONNECTOR WAFER 6 PINS
SOCKET E,F	J05-01010-00	TAIKO TS-80 CONNECTOR
SOCKET D	J05-0106A-00	6 PINS WAFER TL-25P-06-V1
X201	M07-A4434-00	CRYSTAL 4.43361875MHZ
X401	**M02-A4004-00	CRYSTAL 4.00 MHZ
	N01-02B01-01	TUNER B/G SYSTEM (UVE33-W14)
INTEGRATED CIRCUIT		
IC101	001-01240-00	TA7680AP
IC202	001-02420-00	TA7698AP
IC201	004-01300-00	M51397AP
IC406	007-06020-00	L5630
IC401	**004-01420-00	M50431-101SP
IC404	**004-01140-00	M58655P
IC403	**004-01160-00	M50453-012
IC403	**004-01080-00	M51923P
IC405	**007-02090-00	LA7910
CF101	X02-01001-00	CERAMIC FILTER SFE5.5 MHZ
CF102	X02-02001-00	CERAMIC FILTER TPS5.5 MHZ
SAW101	X01-03002-00	TV PIF SAW FILTER F1037B
DL201	Y02-01401-01	ULTRASONIC DELAY LINE ALTERNATE (Y03-01401-01) GLASS DELAY LINE OR EFD-END- EN645A11G (6704-030200-00)
SINGLE JUMPER WIRE AWG22 (L2/L3=5MM X 2 NON TINNED)		
	S02-B1210-EA	120MM BLACK A,O
	S02-B1316-EA	130MM BLUE J
	S02-B1011-EA	100MM BROWN B
	S02-B1512-EA	150MM RED C.K.
	S02-B1713-EA	170MM ORANGE D
	S02-B1719-EA	170MM WHITE H,L,I
	S02-B1915-EA	190MM GREEN G
	S02-B2017-EA	200MM VIOLET M
	S02-B2114-EA	210MM YELLOW E,F
	S02-B1810-EA	180MM BLACK P
	V06-20001-00	BRASS PIN

SCHEMATIC NO.	PART NO.	DESCRIPTION
***CRT P.C.B. ASSEMBLY***		
TRANSISTOR		
Q501, 502, 503	A01-C482D-00	2SC2482
SEMI-FIXED RESISTOR		
VR501, 502	**C01-A502B-C0	500B (RVF8W01-501) G.B. - DRIVE
V4503, 504, 505	C01-A503B-C0	5KB (RVF8W01-502) R.G.B. - CUT OFF
CARBON FILM RESISTOR 1/4W +/-5%		
R501, 502, 503, 504	D01-A151C-D0	150 OHM
CARBON COMPOSITION RESISTOR 1/2W +/-10%		
R508, 509, 510	D05-B472C-F0	4.7 KOHM
METAL OXIDE RESISTOR		
R505, 506, 507	D04-D153C-H0	15 KOHM 2W +/-5%
CERAMIC CAPACITOR		
C506	F01-C102F-D0	.001UF 50V +/-10%
C507	F05-C4720-D0	.0047UF 1KV +/-10%
C504, 505	F01-C821F-D0	820PF 50V +/-10%
PCB002	G01-A118E-00	CRT PCB 90MM X 66M X 1.6MM
	V01-05001-60	PICTURE TUBE SOCKET
CRT		
GROUNDING	J05-01010-00	TAIKO TS-80 CONNECTOR
STRAND JUMPER AWG24 (UL1007)		
L2/L3=3.5MM	S02-D2812-1A	280MM RED J1
TINNED		
L2/L3=3.5MM	S02-D2814-1A	280MM YELLOW J2
TINNED		
L2/L3=3.5MM	S02-D2810-1A	280MM BLACK J3
TINNED		
CONNECTOR ASSEMBLY		
	J03-0101A-00	SMK M-1 CONNECTOR 1 PIN WIRE TYPE: AWG24, STRAND, 1007 UL/CSA APPROVED L1=320MM, WHITE L2=3.5MM TINNED
SOCKET H	J05-0504A-02	TAIKO TLB-P CONNECTOR WIRE TYPE: AWG24, STRAND 1007 UL/CSA APPROVED PIN 1 L1=320MM GREEN L2=3.5MM TINNED PIN 2 L1=320 BLUE L2=3.5MM TINNED PIN 3 L1=320MM RED L2=3.5MM TINNED PIN 4 L1=320MM BLACK L2=3.5MM TINNED

## ELECTRICAL PARTS LIST

SCHEMATIC NO.	PART NO.	DESCRIPTION	SCHEMATIC NO.	PART NO.	DESCRIPTION
***CONTROL P.C.B. ASSEMBLY***			SOCKET A	**J05-0209A-00	TAIKO CONNECTOR 9 PINS WIRE TYPE: AWG24, STRAND, 1007 UL/CSA APPROVED PIN 1 L1=230MM BROWN L2=3.5MM TINNED PIN 2 L1=230MM RED L2=3.5MM TINNED PIN 3 L1=230MM ORANGE L2=3.5MM TINNED PIN 4 L1=230MM YELLOW L2=3.5MM TINNED PIN 5 L1=230MM GREEN L2=3.5MM TINNED PIN 6 L1=230MM BLUE L2=3.5MM TINNED PIN 7 L1=230MM VIOLET L2=3.5MM TINNED PIN 8 L1=230MM WHITE L2=3.5MM TINNED PIN 9 L1=230MM BLACK L2=3.5MM TINNED
Q701	A01-A105E-00	2SA1015Y			
CARBON FILM RESISTOR 1/4W +/-5%					
R707	D01-A221C-D0	220 OHM			
R704	D01-A222C-D0	2.2 KOHM			
R701	D01-A047C-D0	4.7 OHM			
R705	D01-A562C-D0	5.6 KOHM			
R703	D01-A223C-D0	22 KOHM			
R706	D01-A823C-D0	82 KOHM			
R702	D01-A224C-D0	220 KOHM			
CERAMIC CAPACITOR					
C705	F01-C203F-G0	0.02UF 50V +80-20%			
C703	F01-C331F-C0	330PF 50V +/-5%			
ELECTROLYTIC CAPACITOR					
C702	F01-E335F-E0	3.3UF 50V +/-20%			
C701	F01-E105F-E0	1UF 50V +/-20%			
C704	F01-E476B-E0	47UF 10V +/-20%			
PCB003	**G01-A819C-01	CONTROL P.C. BOARD			
L701	H05-0111A-00	CHOKE COIL 100UH			
SW701, 702, 703, 704, 705	K13-0101A-01	TACT SWITCH (SHAFT LENGTH 1.5MM) ALTERNATE (K07-0101A-01)			
	K13-0101A-02	TACT SWITCH (SHAFT LENGTH 6MM) ALTERNATE (K07-0101A-02)			
IC701	016-01080-00	IC CX20106A			
LD701	P01-06010-00	PHOTO DIODE TPS703 ALTERNATE PH302 (P04-06010-00)			
LD702	P01-01010-00	LED RED TLR124			
SOCKET B	J05-0204A-01	TAIKO CONNECTOR 4 PINS H-TL25H04 81-T 001T-5100 WIRE TYPE: AWG26 STRAND, 1007 PIN 1 L1=260MM BLACK L2=3.5MM TINNED PIN 2 L1=320MM RED L2=3.5MM TINNED PIN 3 L1=260MM WHITE L2=3.5MM TINNED PIN 4 L1=260MM YELLOW L2=3.5MM TINNED			



SCHEMATIC NO.	PART NO	DESCRIPTION
***A.V. INPUT P.C.B ASSEMBLY***		
TRANSISTOR		
Q1101, 1102, 1104	A01-C815E-00	2SC1815Y
Q1103	A01-A015E-00	2SA1015Y
DIODE		
D1101, 1102	B01-01148-00	1N4148
CARBON FILM RESISTOR +/-5% 1/4W		
R1110	D01-A101C-D0	100 OHM
R1105	D01-A471C-D0	470OHM
R1108	D01-A272C-D0	2.7 KOHM
R1106	D01-A332C-D0	3.3 KOHM
R1104	D01-A562C-D0	5.6 KOHM
R1109, 1101	D01-A103C-D0	10 KOHM
R1102, 1103	D01-A223C-D0	22 KOHM
R1107	D01-A822C-D0	8.2 KOHM
ELECTRLYTIC CAPACITOR (SINGLE END TYPE)		
C1101, 1102	F01-E225F-E0	2.2UF 50V +/-20%
C1104	F01-E106C-E0	10UF 16V +/-20%
C1103	F01-E475D-E0	4.7UF 25V +/-20%
C1112	F01-E107C-E0	100UF 16V +/-20%
	**G01-A819H-20	AV INPUT P.C. BOARD (40MM X 83MM X 1.6MM)
SOCKET D	**J05-0206A-01	TAIKO TL-25 V-TYPE CONNECTOR 6 PINS WIRE TYPE: AWG26 STRAND UL1007 PIN 1 L1=110MM BROWN L2=3.5MM TINNED PIN 2 L1=120MM RED L2=3.5MM TINNED PIN 3 L1=120MM ORANGE L2=3.5MM TINNED PIN 4 L1=150MM YELLOW L2=3.5MM TINNED PIN 5 L1=140MM GREEN L2=3.5MM TINNED PIN 6 L1=110MM BLUE L2=3.5MM TINNED
	V03-11001-00	SCART SOCKET (21 PIN)

SCHEMATIC NO.	PART NO.	DESCRIPTION
***COMPONENT NOT MOUNTED ON PCB***		
L2001	H07-0801A-00	DEGAUSSING COIL
	L02-01003-00	2-3/4" LOUND
	T01-01340-00	SPEAKER 8 OHM 1W
		COLOR PICTURE TUBE
	J05-0202A-00	A34JAN40X02(W)
		TAIKO TL-25 V-TYPE
		CONNECTOR 2 PIN
		WIRE TYPE: AWG24,
		STRAND, 1007 UL/CSA
		APPROVED
		PIN 1 L1=320MM
		BLACK L2=3.5MM
		TINNED
		PIN 2 L1=320MM
		WHITE L2=3.5MM
		TINNED
FOR CRT GROUNDING	J05-0101A-10	TAIKO TS-80
		CONNECTOR 1 PIN
		WIRE TYPE: AW24,
		STRAND 1015 UL/CSA
		APPROVED
		L1=280MM BLACK
		L2=10MM NON-TINNED
*****AC LINE FILTER PCB ASSEMBLY*****		
C1202, 1201	F05-P474 V-E0	FILM CAPACITOR
		0.47UF AC 250V
L1201	**G01-A 819F-02	AC LINE FILTER P.C.
		BOARD
	H16 -0601C-00	AC LINE FILTER
	**S05-A2620-0D	AC LINE CORD VDE
		2.6M VDE
SW1201	K14-0201E-00	POWER SWITCH "ITT"
		2PIT
F1201	V01-02010-00	FUSE T2A AC 250V
	V04-06001-00	FUSE HOLDER
FOR D2 (NEUTRAL LINE)	J05-0101A-11	TAIKO TS-80
		CONNECTOR 1 PIN
		WIRE TYPE: AWG22,
		STRAND DOUBLE
		INSULATION,
		1617 UL/CSA
		APPROVED
		L1=460MM BLUE
		L2=10MM NON-TINNED
FOR D1 (LIVE LINE)	J05-0101A-12	TAIKO TS-80
		CONNECTOR 1 PIN
		WIRE TYPE: AWG22,
		STRAND DOUBLE
		INSULATION 1617
		UL/CSA APPROVED
		L1=460MM BROWN
		L2=10MM NON-TINNED
REMARK: **NEW PARTS		

SCHEMATIC NO.	PART NO.	DESCRIPTION
***HAND SET PCB ASSEMBLY***		
TRANSISTOR		
Q801	A01-C815E-00	2SC1815Y
Q802	A01-C120E-00	2SC2120-Y
DIODE		
D801	B01-01148-00	IN4148
D802	B01-01001-00	IN4001
CARBON FILM RESISTOR 1/4W +/-5%		
R801, 802	D01-A010C-D0	1 OHM
R804	D01-A101C-D0	100 OHM
R803	D01-A223C-00	22 KOHM
ELECTROLYTIC CAPACITOR (SINGLE ENDED TYPE)		
C803	F01-E107B-E0	100UF 10V +/-20%
CERAMIC CAPACITOR		
C801, 802	F01-C101FC-C0	100PF 50V +/-5%
	**G01-B819E-02	HAND SET P.C.B BOARD
X801	M01-B4551-00	CERAMIC RESONATOR 455KHz
INTEGRATED CIRCUIT		
IC801	004-01200-00	IC M50560-001P
LD801, 802	B01-06110-00	INFRARED LED TLN105 ALTERNATE INFRARED LED SE303 A-C (B02-06110-00)
STRAND JUMPER WIRE AWG26 (UL 1007)		
L2/L3=3.5MM	S00-D4002-JA	40MM RED B+
TINNED		
L2/L3=3.5MM	S00-D4000-JA	40MM BLACK B-
TINNED		

## SPECIFICATIONS

Television Systems	: B/G system for 625 lines	
Colour System	: PAL	
Channel Coverage	: VHF(L) Channel 2 to 4 VHF(H) Channel 5 to 12 UHF Channel 21 to 69	S1* to S3* ] For CATV only S1 to S2 S3 to S20 -- For CATV only
Picture Tube Size	: 37 cm	
Aerial	: 75 ohm Unbalance (EXIT)	
Speaker	: 8 Ohm	
Audio Output	: 1.5W	
Power Requirements	: AC 230V 50 Hz	
Power Consumption	: 60W (MAX.)	
Dimensions (WxHxD)	: 388mm x 362 mm x 370 mm	
Weight	: 10.5 Kg.	

\* Design and specifications are subject to change without notice.